

## \*\*\*\*\* QUERY RESULTS \*\*\*\*\*

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(FILE 'WPIX' ENTERED AT 13:25:57 ON 25 NOV 2009)

L56 18 S L54 AND (AY&lt;2004 OR PRY&lt;2004 OR PY&lt;2004)

=&gt; d que 156

L10 86044 SEA FILE=HCAPLUS ABB=ON PLU=ON (COAT# OR COATING OR COATED)  
(3A) (SUBSTRATE#)

L12 893059 SEA FILE=HCAPLUS ABB=ON PLU=ON SILICA OR (SI OR SILICON) (W)  
(OXIDE# OR OXIDIZ? OR DIOXIDE#) OR SIO2

L14 258359 SEA FILE=HCAPLUS ABB=ON PLU=ON TITANIA OR (TI OR TITANIUM)  
(W) (OXIDE# OR DIOXIDE#)

L16 QUE ABB=ON PLU=ON PIGMENT# OR COLOR? OR COLOUR? OR DYE  
? OR STAIN? OR CHROMOPHOR? OR CHROMOGEN? OR PAINT?

L17 QUE ABB=ON PLU=ON POLYMER? OR COPOLYMER? OR TERPOLYMER  
? OR HOMOPOLYMER? OR RESIN#

L18 118282 SEA FILE=HCAPLUS ABB=ON PLU=ON SILANE#

L22 4864 SEA FILE=HCAPLUS ABB=ON PLU=ON (HALOGRAPH? OR PEARLESC? OR  
INTERFEREN? OR BIOCL) (2A) L16

L43 31848 SEA FILE=WPIX ABB=ON PLU=ON L10 AND L17

L44 2338 SEA FILE=WPIX ABB=ON PLU=ON L43 AND L18

L45 826 SEA FILE=WPIX ABB=ON PLU=ON (L12 OR L14 OR L22) AND L44

L46 185 SEA FILE=WPIX ABB=ON PLU=ON (MULTI? OR MUL(W)TI OR MULTIPLE  
OR SEVERAL? OR PLURAL?) AND L45

L48 57 SEA FILE=WPIX ABB=ON PLU=ON L46 AND (MULTI? OR MUL(W)TI OR  
MULTIPLE OR SEVERAL? OR PLURAL?) (2A) (LAYER? OR FILM? OR  
STRUCTURE?)

L49 278122 SEA FILE=WPIX ABB=ON PLU=ON (LAYER? OR COAT# OR COATED OR  
COATING#) (3A) L17

L50 5298 SEA FILE=WPIX ABB=ON PLU=ON (LAYER? OR COAT# OR COATED OR  
COATING#) (3A) L18

L51 17 SEA FILE=WPIX ABB=ON PLU=ON L48 AND L49

L52 15 SEA FILE=WPIX ABB=ON PLU=ON L48 AND L50

L54 26 SEA FILE=WPIX ABB=ON PLU=ON L51 OR L52

L56 18 SEA FILE=WPIX ABB=ON PLU=ON L54 AND (AY<2004 OR PRY<2004 OR  
PY<2004)

=&gt; d 156 1-18 iall abeq tech abex

L56 ANSWER 1 OF 18 WPIX COPYRIGHT 2009 THOMSON REUTERS on STN

ACCESSION NUMBER: 2007-686392 [64] WPIX

CROSS REFERENCE: 2005-150914; 2007-070671; 2007-205140; 2007-725232

DOC. NO. CPI: C2007-240412 [64]

DOC. NO. NON-CPI: N2007-538771 [64]

TITLE: Integrated circuit manufacturing method e.g. for dynamic  
RAM of computer, involves forming mask layer with  
openings that expose previous conductive layer, and  
forming conductive layer in openings extending to mask  
layer top surface

DERWENT CLASS: A89; G06; L03; T01; U11

INVENTOR: AHN K Y; FORBES L

PATENT ASSIGNEE: (MICR-N) MICRON TECHNOLOGY INC

COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC
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US 20070141830 A1 20070621 (200764)\* EN 10[8]

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 20070141830 A1	Cont of	US 2000-484303	20000118
US 20070141830 A1		US 2007-652310	20070111

PRIORITY APPLN. INFO: US 2007-652310 20070111  
 US 2000-484303 20000118

## INT. PATENT CLASSIF.:

IPC ORIGINAL: H01L0021-02 [I,C]; H01L0021-4763 [I,A]  
 IPC RECLASSIF.: H01L0021-285 [I,A]; H01L0021-70 [I,C]; H01L0021-768 [I,A]  
 ECLA: H01L0021-285B4; H01L0021-768C3; H01L0021-768C6  
 USCLASS NCLM: 438/622.000  
 NCLS: 257/E21.162; 257/E21.589; 257/E23.141

## BASIC ABSTRACT:

US 20070141830 A1 UPAB: 20071024

NOVELTY - The method involves forming initial mask layer with several openings on an insulator layer over a semiconductor substrate, and forming initial conductive layer (218) on the mask and within each of openings. Intermediate mask layer with openings that expose initial conductive layer is formed, and intermediate conductive layer (222) is formed on the initial conductive layer extending upwards to top surface of the intermediate mask layer. Final mask and conductive layers are formed, same as intermediate mask and conductive layers.

DETAILED DESCRIPTION - Each opening has length which is five times the width of opening to form trench. The mask layer is formed by coating substrate and insulator layer, with photosensitive polymer layer which is patterned. Another photosensitive polymer layer is coated over the patterned layer, which is then patterned and baked to obtain mask layer. Diffusion barrier layer (226) and plating seed layer are formed in the openings of mask layer before forming conductive layer. Conductive layer is formed to thickness equal to thickness of mask layer. The mask layers are removed by oxygen plasma. Insulation layer (228) is formed surrounding all portions of conductive layers and insulator layer. The conductive layer is formed by sputter deposition, ionized magnetron sputtering, direct current (DC) magnetron sputtering, electroplating, chemical vapor deposition, electroless plating or evaporation deposition.

USE - For manufacturing integrated circuit such as dynamic RAM (DRAM) used in computer and other electronic apparatus.

ADVANTAGE - Simplifies manufacturing process and improves performance.

DESCRIPTION OF DRAWINGS - The figure shows a sectional view of the integrated circuit.

Conductive layers (218,222)  
 Diffusion barrier layer (226)  
 Insulation layer (228)

MANUAL CODE: CPI: A12-E07C; A12-L02B2; G06-C14; G06-D06A; G06-F03C;  
 G06-G17; G06-G18; L04-C06A; L04-C10A; L04-E15  
 EPI: T01-H01B3; T01-J07B2; U11-C05D; U11-C05F6

## TECH

INORGANIC CHEMISTRY - The conductive material for conductive layer is selected from gold, silver, copper, titanium and tungsten. The diffusion barrier layer is formed using tungsten hexafluoride, hydrogen gas and silane gas. The voids between conductive materials is filled with silicon dioxide, aerogel, xerogel, polyimide, siloxane or silicon oxynitride. An adhesion promotion layer for conductive material, comprises titanium nitride.

L56 ANSWER 2 OF 18 WPIX COPYRIGHT 2009 THOMSON REUTERS on STN  
 ACCESSION NUMBER: 2005-457502 [46] WPIX  
 CROSS REFERENCE: 2007-493460  
 DOC. NO. CPI: C2005-139053 [46]  
 DOC. NO. NON-CPI: N2005-372019 [46]  
 TITLE: Imaging member useful as an electrophotographic imaging member, comprises an optional supporting substrate, a charge-generating layer and a charge transport layer deposited on the charge-generating layer  
 DERWENT CLASS: A89; E14; G08; P84; S06  
 INVENTOR: AHUJA S K; HORGAN A M; MISHRA S; MURTI D K; YU R C U  
 PATENT ASSIGNEE: (XERO-C) XEROX CORP  
 COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC
US 20050136349	A1 20050623 (200546)*	EN	20[4]		G03G0005-047
US 7166397	B2 20070123 (200708)	EN			

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 20050136349	A1	US 2003-744369	20031223

PRIORITY APPLN. INFO: US 2003-744369

20031223

## INT. PATENT CLASSIF.:

IPC ORIGINAL: G03G0005-043 [I,C]; G03G0005-047 [I,A]  
 IPC RECLASSIF.: G03G0005-043 [I,C]; G03G0005-047 [I,A]; G03G0005-05 [I,A]  
 ; G03G0005-05 [I,C]  
 ECLA: G03G0005-05B; G03G0005-05C  
 USCLASS NCLM: 430/058.050  
 NCLS: 430/058.050; 430/058.400; 430/058.650; 430/058.800;  
 430/059.600; 430/133.000; 430/970.000

## BASIC ABSTRACT:

US 20050136349 A1 UPAB: 20051223

NOVELTY - An imaging member comprises an optional supporting substrate, a charge-generating layer and a charge transport layer (C1) deposited on the charge-generating layer. (C1) comprises a lower surface in contact with the charge generating layer and an upper surface, a film forming polymer binder and a charge transport compound dispersed. The concentration of the charge transport compound in (C1) decreases from the lower surface to the upper surface.

USE - As an electrophotographic imaging member, especially high speed color xerographic imaging and digital printing.

ADVANTAGE - The imaging member exhibits enhanced cracking suppression, improved wear resistance, excellent imaging member electrical and mechanical performance, improved copy print out quality, enhanced performance properties, is more tolerant to failures caused by mechanical and electrical stresses, has enhanced coating thickness uniformity and an increased functional life. The imaging member also minimizes light shock, avoids or causes minimal undesirable migration of the hindered phenol to the photogenerating layer and thus avoids imaging member instability, such as electrical performance degradation, and undesirable electrical characteristics especially on long term cycling of the member. Moreover, the coating of the transport layers in separate passes minimizes the transport layers thickness variations and also avoids an increase in the lateral surface conductivity of the member which in turn can cause image degradation, referred to as lateral conductivity migration (LCM).

MANUAL CODE: CPI: A12-L05; A12-L05D; E08-D02; E10-B01A; E10-B04A2;  
E23-B; E31-D04; E31-G; E31-P03; E35-C; E35-K02; G06-G08;  
G06-G08D  
EPI: S06-A01A1; S06-A11

## TECH

IMAGING AND COMMUNICATION - Preferred Components: The charge transport layer comprises a first charge transport layer containing a charge transport component and a film forming polymer binder or a resin binder, and several additional charge transport layers, which are in contact with the first charge transport layer. Each of the additional charge transport layers comprises a charge transport component and the film forming polymer binder. The additional charge transport layers contain 2 - 15 (preferably 2 - 7, especially 2 - 3, particularly 3) layers. The imaging member further comprises an electrically conductive layer.

Preferred Composition: The concentration of the charge transport compound in the upper surface is 10 - 90 (preferably 20 - 80, especially 30 - 70, especially 40 - 60)% less than the concentration of the charge transport compound in the lower surface.

The charge transport compound progressively decreases in concentration from the lower surface to the upper surface of the charge transport layer. The charge transport compound is molecularly dispersed in the film-forming polymer to form a solid solution. The lower surface comprises charge transport compound (50 - 90, preferably 40 - 80 wt.%) and the upper surface comprises the charge transport compound (5 - 10, preferably 2 - 8 wt.%). The total thickness of the layers of the charge transport layer is 10 - 110 micrometers. The upper surface of the charge transport layer and the upper layer of the additional charge transport layers further comprise a nano particle dispersion. The amount of charge transport component in the layers of the charge transport layer is the greatest in the first charge transport layer and progressively decreases to the upper layer of the additional charge transport layers. The first charge transport layer contains the charge transport component (50 - 90, preferably 60 - 70 wt.%). The upper layer of the additional charge transport layers contains the charge transport components (10 - 30, preferably 5 - 25 wt.%). The base layer of the additional charge transport layers contains the charge transport components (40 - 60, preferably 30 - 50 wt.%).

The second layer of the additional charge transport layers contains the charge transport components (25 - 45 wt.%, 30 - 50 wt.% or 10 - 35 wt.%). The third layer of the additional charge transport layers contains the charge transport components (20 - 40%, 10 - 30 wt.% or 5 - 25 wt.%). The fourth layer of the additional charge transport layers contains the charge transport components (15 - 35%). The first charge transport layer contains the charge transport components (50 - 90 wt.% or 40 - 80 wt.%). Each layer of the multiple charge transport layer is of a thickness of 5 - 10 micrometers.

ORGANIC CHEMISTRY - Preferred Components: The charge transport layer further comprises a stabilizing hindered phenol. The concentration of the hindered phenol increases from the lower surface to the upper surface of the charge transport layer or from the first charge transport layer to the layer of the additional charge transport layers. The charge transport compound is an aryl amine of formula (I) or a terphenyl diamine of formula (II). Each of the charge transport layers contain N,N'-diphenyl-N,N'-bis(3-methylphenyl)-(1,1'-biphenyl)-4,4'diamine or N,N'-diphenyl-N,N'-bis(4-methylphenyl)-(1,1'-biphenyl)-4,4'diamine. X = alkyl, alkoxy, hydroxyl or halo;

R1 = optional 1-10C alkyl;

R2 = optional 1-10C alkyl.

POLYMERS - Preferred Components: The binder is a polyester, polyvinyl butyral, polycarbonate, polystyrene or polyvinyl formate (preferably a

polycarbonate having a weight average molecular weight (Mw) of 20000 - 100000). The polycarbonate is poly(4,4'-isopropylidene diphenyl carbonate) and/or poly(4,4'-diphenyl-1,1'-cyclohexane carbonate). The particles of the nano particle dispersion are selected from wax, polyethylene and PTFE particles. The imaging member further comprises an adhesive layer, an overcoat layer, a substrate with a thickness of 50 - 300 (preferably 80 - 120) micrometers, and a hole blocking layer of polyvinyl butyral and phenolic resins.

**INORGANIC CHEMISTRY - Preferred Components:** The particles of the nano particle dispersion are selected from silica and metal oxides. The imaging member further comprises a hole blocking layer of gamma-amino silane, zinc oxide, titanium oxide or silica. The hole blocking layer has a thickness of 0.2 - 2 micrometers. The charge generating layer comprises metal free phthalocyanines, metal phthalocyanines, vandyl phthalocyanines, perylenes, titanil phthalocyanines, hydroxy gallium phthalocyanines, selenium and/or selenium alloys.

**ABEX SPECIFIC COMPOUNDS - 21** Compounds are specifically claimed as the charge transport compounds e.g. triphenylmethane, bis(4-diethylamine-2-methylphenyl) phenylmethane, N,N'-diphenyl-N,N'-bis(chlorophenyl)-1,1'-biphenyl-4,4'-diamine, N,N'-diphenyl-N,N'-bis(3-methylphenyl)-(1,1'-biphenyl)-4,4'-diamine, N,N'-bis(4-methylphenyl)-N,N'-bis(4-(1-butyl)-phenyl)-(para-terphenyl)-4,4'-diamine.

**EXAMPLE -** An electrophotographic imaging member web stock was prepared by providing a titanium layer (0.02 micrometers thick) coated on KALADEX (TM) (a biaxially oriented polyethylene naphthalate substrate having a thickness of 3.5 micrometers) (89 micrometers). Then the substrate was coated with a hole blocking layer generated from and a solution containing gamma-aminopropyltriethoxy silane (10 g), distilled water (10.1 g), acetic acid (3 g), 200 proof denatured alcohol (684.8 g) and heptane (200 g). This layer was then dried for 5 minutes at 135 degrees C. The resulting hole blocking layer had an average dry thickness of 0.05 micrometers. An adhesive interface layer was then prepared by extrusion application to the hole blocking layer, a wet coating containing a solution (5 wt.%) of MOR-ESTER 49000 (TM) (polyester adhesive) in a 70:30 volume ratio mixture of tetrahydrofuranicyclohexanone. The adhesive interface layer was dried for 5 minutes at 135 degrees C. The resulting adhesive interface layer had a dry thickness of 0.065 micrometers. The adhesive interface layer was then coated with a photogenerating layer. The photogenerating layer dispersion was prepared by mixing IUPILON 200 (TM)

(poly(4,4'-diphenyl)-1,1'-cyclohexane carbonate) (0.45 g) and tetrahydrofuran (50 milliliters). To this solution were added hydroxygallium phthalocyanine (2.4 g) and stainless steel shot (300 g). This mixture was then ball milled for 20 - 24 hours. Subsequently, poly(4,4'-diphenyl)-1,1'-cyclohexane carbonate (2.25 g) was dissolved in tetrahydrofuran (46.1 g), then added to this hydrogallium phthalocyanine slurry. This slurry was then coated onto the adhesive interface by extrusion application process to form a layer having a wet thickness of 0.25 milliliters. However, a strip about 10 millimeters wide along one edge of the substrate web bearing the blocking layer and the adhesive layer was deliberately left uncoated by any of the photogenerating (or charge generating) layer material to facilitate adequate electrical contact by the ground strip layer that was applied later. This photogenerating layer was dried at 135 degrees C for 5 minutes to form a dry thickness photogenerating layer having a thickness of 0.4 micrometer layer. This coated imaging member, at this point, was simultaneously coated onto with a charge transport layer and a ground strip layer using extrusion co-coating process. The charge transport layer was prepared by

mixing a weight ratio of 1:1 N,N'-diphenyl-N,N'-bis(3-methylphenyl)-1,1'-biphenyl-4,4'-diamine (organic hole transport compound) and MAKROLON 5705 (TM) (a polycarbonate resin having a weight average molecular weight of 120000). The resulting mixture was dissolved to give a solid (15 wt.%) in methylene chloride (85 wt.%). This solution was applied onto the photogenerator layer to form a coating which upon drying gave a 30 micrometer thick binary solid solution charge transport layer and comprised of 50:50 weight percent hole transport compound to polymer binder ratio. The approximately 10 millimeter wide strip of the adhesive layer left uncoated by the photogenerator layer was coated over with a ground strip layer during the co-coating process. This ground strip layer, after drying along with the co-coated hole transport layer at 135 degrees C for 5 minutes, had a dried thickness of 19 micrometers. This ground strip was electrically grounded. The imaging member, if unrestrained, at this point, did exhibit spontaneous upward curling into an 11/2 inch roll. An anticurl coating was prepared by combining (g) MAKROLON 5705 (RTM; polycarbonate resin) (8.82), VITEL PE-200 (TM) (polyester resin) (0.72) and methylene chloride (90.1 g) to form a coating solution containing solids (8.9 %). The anticurl coating solution was then applied to the rear surface (side opposite the photogenerator layer and hole transport layer) of the imaging member web stock, again by extrusion coating process, and dried at 135 degrees C for 5 minutes to produce a dried film thickness of 17 micrometers and render flatness. The resulting electrophotographic imaging member was used to serve as an imaging member (control). Five test electrophotographic imaging members were prepared in the same manner as the control, except that their charge transport layers contained descending content of 40, 30, 20, 10, and 0 wt.% of the hole transport compound in each respective layer. These prepared imaging members and the control imaging member were cut to give samples (1 inchx6 inches). Each of these samples was then subjected to low speed sample tensile elongation. The exact extent of stretching at which onset of charge transport layer cracking in each of the six imaging member samples became evident when determined by examining the sample under 100xmagnification. The charge transport layer cracking strains observed was about 3.25, 6.25, 10.5, 15.5, 63.5, 95.5 elongation percents, respectively, for the control and each of the samples containing the descending amount of 50, 40, 30, 20, 10, and 0 wt.% hole transport compound. These results were a further evidence to support the conclusion that improvement of an imaging member charge transport layer mechanical strength to resist tensile cracking could conveniently be achieved by reducing the content of the hole transport compound content in the layer. Additional experimental testing results obtained also showed that reduction of charge transport compound could give another added benefit to the charge transport layer resistive to wear. To evaluate the charge transport layer cracking resistance to solvent vapor exposure, the five prepared imaging members and the control imaging member were cut to give 2 inchesx3 inches test samples. Each of these test samples was rolled-up into a tube, with the charge transport layer facing outwardly to induce bending strain, and then subjected to methylene chloride vapor exposure until the time that charge transport layer cracking became visually evident under 100x magnification. It was observed that the imaging member solvent vapor exposure charge transport layer cracking could be suppressed by its charge transport compound reduction and absolute cracking elimination was achieved when the concentration of the charge transport compound was reduced to a low level of less than 20 wt.% as was found in the case of test imaging members as compared to the control imaging member.

CROSS REFERENCE: 2004-689170  
 DOC. NO. CPI: C2005-039936 [13]  
 TITLE: Coating composition for coating substrate, e.g. plastic, for refinishing damaged coating on motor vehicle body, contains acrylic polymer, polytrimethylene ether diol, and polyisocyanate crosslinking agent  
 DERWENT CLASS: A13; A14; A25; A95; G02  
 INVENTOR: HUYNH-BA G; KURIAN J V; ONEIL J W; SORMANI P M E; SUNKARA H B  
 PATENT ASSIGNEE: (HUYN-I) HUYNH-BA G; (KURI-I) KURIAN J V; (ONEI-I) ONEIL J W; (SORM-I) SORMANI P M E; (SUNK-I) SUNKARA H B; (DUPO-C) DU PONT DE NEMOURS & CO E I  
 COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 20040258923	A1	20041223	(200513)*	EN	19[0]	
US 7169475	B2	20070130	(200710)	EN		

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 20040258923	A1	CIP of	US 2003-393754 20030321
US 20040258923	A1		US 2004-804259 20040319
US 7169475	B2	CIP of	US 2003-393754 20030321
US 7169475	B2		US 2004-804259 20040319

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
US 7169475	B2 CIP of	US 6875514 B

PRIORITY APPLN. INFO: US 2004-804259 20040319  
 US 2003-393754 20030321

## INT. PATENT CLASSIF.:

IPC ORIGINAL: B32B0027-00 [I,A]; B32B0027-00 [I,C]  
 IPC RECLASSIF.: C08G0018-00 [I,C]; C08G0018-40 [I,A]; C08G0018-42 [I,A]; C08G0018-48 [I,A]; C08G0018-79 [I,A]; C08G0065-00 [I,C]; C08G0065-18 [I,A]; C08G0065-34 [I,A]; C08K0003-00 [N,A]; C08K0003-00 [N,C]; C08K0007-00 [N,C]; C08K0007-28 [N,A]; C09D0175-04 [I,A]; C09D0175-04 [I,C]  
 ECLA: C08G0018-40A12; C08G0018-42D; C08G0018-48B; C08G0018-79D4; C08G0065-18; C08G0065-34; C09D0175-04  
 ICO: M08K0003:00P5; M08K0007:28  
 USCLASS NCLM: 428/422.800  
 NCLS: 156/094.000; 427/407.100; 427/409.000; 428/423.300; 428/515.000; 525/460.000; 528/306.000

## BASIC ABSTRACT:

US 20040258923 A1 UPAB: 20050708  
 NOVELTY - A coating composition comprises film-forming binder. The film forming binder contains acrylic polymer, polytrimethylene ether diol, and organic polyisocyanate crosslinking agent. The acrylic polymer has pendant groups reactive with isocyanate moieties and has glass transition temperature of 10-80degreesC. The polytrimethylene ether diol has average molecular weight of 500-5000.

## DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

- (1) coated substrate comprises substrate coated with layer of coating composition;
- (2) two component coating composition comprising acrylic polymer, and organic polyisocyanate crosslinking agent;
- (3) coating substrate comprising applying a first layer of coating composition to substrate and drying the layer; and
- (4) refinishing damaged coating on motor vehicle body comprising applying pigmented coating composition layer to damage coating, (partially) curing the layer, and applying second layer of pigmented top coat or layer of pigmented base coat and a layer of clear coat, and curing all the layers to form a finish.

USE - For use in coating substrate, e.g. steel aluminum, reinforced plastic, or plastic (claimed) or in refinishing damaged coating on motor vehicle body. It can also be used exterior clear coating composition primarily for automobile, trucks, and their parts.

ADVANTAGE - The invention provides chip resistant multi-layer coating and good sandability. It provides finish with required physical properties, e.g. exterior durability and weather ability. It can cure in hard tack free finish in short period of time. It uses components that can be derived from renewable resources. MANUAL CODES:

CPI: A04-F01A1; A05-G; A05-G03; A08-C09A; A11-B05;  
A11-C02C; A12-T04; A12-T05; G02-A05

## TECH

ORGANIC CHEMISTRY - Preferred Components: The binder comprises (wt.%) acrylic polymer (10-80, preferably 35-55), polytrimethylene ether diol (1-50, preferably 20-30), and organic polyisocyanate crosslinking agent (10-50, preferably 20-45). The polytrimethylene ether diol is a blend of high and low molecular weight ether diols. The composition comprises a branched linear oligomer added to the polytrimethylene ether diol. The acrylic polymer comprises polymerized monomers. The polymerized monomers is linear alkyl (meth)acrylates with 1-12C in alkyl groups, cyclic or branched alkyl (meth)acrylates with 3-12C atoms in alkyl groups, isobornyl (meth)acrylates, styrene, alpha-methyl styrene, (meth)acrylonitrile, (meth)acryl amide, or polymerized monomers provided groups reactive with isocyanate. The isocyanate is hydroxy alkyl(meth)acrylates with 1-4C atoms in alkyl group, alkoxy silyl alkyl (meth)acrylate or (meth)acrylic acid. The polyisocyanate is aliphatic polyisocyanate, cycloaliphatic polyisocyanate, aromatic polyisocyanate, tri-functional isocyanates, or isocyanate adducts. The composition contains pigments in a pigment to binder weight ratio of 1:100-300:100 the pigment is titanium dioxide, iron oxide, silica, carbon black, barite, zinc oxide, aluminum silicate, barium sulfate, zinc phosphate, lead silicate, clay, talc, and/or hollow glass spheres. The polymerized monomers are preferably alkyl (meth)acrylates with 1-12C in alkyl groups, isobornyl (meth)acrylates, styrene, alpha-methyl styrene, (meth)acrylonitrile, (meth)acryl amide, or polymerized monomers provided groups reactive with isocyanate. The acrylic polymer is styrene, ethyl hexyl methacrylate, isobornyl methacrylate, or hydroxy ether methacrylate. The polyisocyanate is preferably isophorone di isocyanate, toluene di isocyanate, hexa methylene di isocyanate, diphenyl methane di isocyanate, triphenyl tri isocyanate, benzene tri isocyanate, toluene tri isocyanate, or the trimer of hexamethylene di isocyanate. The coating composition contains amino functional silane crosslinking agent (0.1-20 wt.%) of structure  $(XnR)aSi(OSi)y-(OR1)b$ .

R = 1-22C hydrocarbon group;

R1 = 1-8C alkyl group;

R2 = 1-4C alkyl group;

a = greater than or equal to 1;

b = greater than or equal to 2; and  
y = 0-20

The amino functional silane is N-beta-(amino ethyl)-gamma-aminopropyl trimethoxy silane, or diethylene tri-amino propyl amino trimethoxy silane. The coating composition also comprises additional amino functional compound. The additional amino functional compound is primary, secondary, or tertiary amines. The composition also comprises ultraviolet light stabilizers (0.1-10 wt.%), and antioxidant (0.1-5 wt.%). The ultraviolet light stabilizers are ultraviolet absorbers, ultraviolet screeners, or ultraviolet quenchers, hindered amine light stabilizers. Preferred Properties: The polytrimethylene ether diol has average molecular weight of 1000-30000, glass transition temperature of -75degreesC, and hydroxyl number of 20-200. The high molecular weight diol has average molecular weight of 1000-4000. The low molecular weight diol has average molecular weight of 150-500. The average molecular weight of blend is 1000-3000. The acrylic polymer has weight average molecular weight of 1000-100000 and glass transition of 10-80degreesC. Preferred Methods: The polytrimethylene ether diol is made by bioconversion process.

ABEX EXAMPLE - A composition containing (parts by weight) hydroxy acrylic polymer (60), polytrimethylene ether diol (2.3), dibutyl tin dilaurate (0.21), butyl acetate (30.5), xylene (23.5), methyl amyl ketone (30.5), BKY-333 (0.06), and activator (34.9) was prepared and evaluated for its Peroz and Fischer Hardness. The results showed that the composition has Peroz hardness of 10 after 3 hours, and Fischer hardness of 26.2 after 1 day.

L56 ANSWER 4 OF 18 WPIX COPYRIGHT 2009 THOMSON REUTERS on STN  
ACCESSION NUMBER: 2003-771800 [73] WPIX  
DOC. NO. CPI: C2003-212654 [73]  
TITLE: Surface treated steel sheet used as substrate  
steel sheet has coating layer on surface of  
plated steel plate having metal plating film whose  
temperature is raised to preset range and then cooled at  
preset rate  
M13; M27  
DERWENT CLASS: FUKUSHIMA Y; INAGAKI J; ISHIDA N; MAJIMA Y; OI T; YAMAJI  
INVENTOR: T; YAMASHITA M; YOSHIDA K  
PATENT ASSIGNEE: (NIKN-C) NKK CORP; (NKKK-N) NKK KOHAN KK  
COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC
JP 2003213396	A	20030730	(200373)*	JA	12[1]

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## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 2003213396	A	JP 2002-9997	20020118

PRIORITY APPLN. INFO: JP 2002-9997 20020118

INT. PATENT CLASSIF.:

IPC RECLASSIF.: C23C0002-04 [I,C]; C23C0002-06 [I,A]; C23C0002-06 [I,C];  
C23C0002-12 [I,A]; C23C0002-28 [I,A]; C23C0002-28 [I,C];  
C23C0002-05 [I,C]; C23C0002-07 [I,A]; C23C0002-18 [I,A];  
C23C0002-22 [I,A]; C23C0002-00 [I,A]; C23C0002-00 [I,C]

JAP. PATENT CLASSIF.:

MAIN/SEC.: C23C0002-06; C23C0002-12; C23C0002-28; C23C0002-07;  
 C23C0022-18; C23C0022-22; C23C0028-00 C  
 FTERM CLASSIF.: 4K026; 4K027; 4K044; 4K026/AA02; 4K044/AA02; 4K027/AA05;  
 4K026/AA13; 4K027/AA22; 4K027/AB05; 4K027/AB26;  
 4K027/AB44; 4K027/AB48; 4K027/AC76; 4K027/AE03;  
 4K027/AE12; 4K027/AE18; 4K026/BA03; 4K026/BA05;  
 4K044/BA10; 4K026/BA12; 4K044/BA17; 4K044/BA21;  
 4K026/BB08; 4K026/BB09; 4K044/BC02; 4K044/BC05;  
 4K044/CA11; 4K026/CA16; 4K044/CA16; 4K026/CA18;  
 4K026/CA23; 4K044/CA53

## BASIC ABSTRACT:

JP 2003213396 A UPAB: 20050601

NOVELTY - Surface treated steel sheet has coating layer on surface of melting aluminum-zinc type steel plate having aluminum content of 20-95 mass% in plating film. The coating film has adhesion amount of 0.1-5 g/m<sup>2</sup>. After solidifying the hot dipped plated metal, temperature is raised to T (130-300 degrees C) by heating, and cooled at average cooling rate (C) in degrees C/hour from T to 100 degrees C.

DETAILED DESCRIPTION - Surface treated steel sheet has coating layer on surface of melting aluminum-zinc type steel plate having aluminum content of 20-95 mass% in plating film. The coating film is a mono or multilayered film containing organic resin and mineral element and is free of chromium. The coating film has adhesion amount of 0.1-5 g/m<sup>2</sup>. After solidifying the hot dipped plated metal, temperature is raised to T (130-300 degrees C) by heating, and cooled at average cooling rate (C) in degrees C/hour from T to 100 degrees C, where C is given by the expression  $C = (T-100)/2$ .

INDEPENDENT CLAIMS are also included for the following:

- (1) manufacture of surface treated steel sheet;
- (2) manufacture of coated steel plate which involves providing 1 or 2 coatings to the coated layer surface of surface treated steel sheet; and
- (3) coated steel plate having mono or multilayered coating film on the surface of surface treated steel sheet.

USE - Used as substrate steel sheet.

ADVANTAGE - The surface treated steel sheet has non-chromate coating layer, excellent workability and corrosion resistance at the processed portion. The stabilized surface treated steel sheet is manufactured with high productivity.

DESCRIPTION OF DRAWINGS - The figure is a graph that shows the influence of the heating temperature of the metal plating film on the workability of the surface treated steel sheet. (Drawing includes non-English language text).

MANUAL CODE: CPT: M13-A; M13-D; M13-H05; M27-B04

## TECH

METALLURGY - Preferred Steel Sheet: The coating layer contains inorganic component chosen from phosphoric acid, phosphate, silica, silane coupling agent, calcium, calcium type compound, manganese, manganese type compound, magnesium, magnesium type compound, nickel, nickel type compound, cobalt, cobalt type compound, iron and/or iron type compound. The metal plating film contains 0.01-10 mass% of magnesium, vanadium and/or manganese. The coating layer is a monolayered film or a multilayered film in which the lower layer contains an inorganic component and upper layer contains an organic resin.

Preferred Process: The temperature of the hot dipped plated metal is raised to T and cooled at cooling rate of C before formation of coating layer, during drying of the coating layer, after forming the coating layer or in cooling process during which the hot dipped plated metal is solidified. Temperature of the hot dipped plated metal is preferably raised to 130-200 degrees C.

ACCESSION NUMBER: 2003-457203 [43] WPIX  
 DOC. NO. CPI: C2003-121583 [43]  
 DOC. NO. NON-CPI: N2003-363659 [43]  
 TITLE: Preparation of nitric oxide releasing substrates used for treating e.g. cancer involves contacting substrate with amine functionalized silane derivatives to form multilayer substrate and contacting substrate with nitric oxide gas  
 A96; B07; P34; P32; P42  
 DERWENT CLASS: CHENG P; FITZHUGH A  
 INVENTOR: CHENG P; FITZHUGH A  
 PATENT ASSIGNEE: (USSH-C) US DEPT HEALTH & HUMAN SERVICES; (CHEN-I) CHENG P; (FITZ-I) FITZHUGH A  
 COUNTRY COUNT: 100

## PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC	
WO 2003026717	A1 20030403	(200343)*	EN	26[01]		<--
EP 1436018	A1 20040714	(200446)	EN			
AU 2002336761	A1 20030407	(200468)	EN			<--
US 20070087025	A1 20070419	(200729)	EN			

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003026717	A1	WO 2002-US30160	20020923
AU 2002336761	A1	AU 2002-336761	20020923
EP 1436018	A1	EP 2002-773539	20020923
EP 1436018	A1	WO 2002-US30160	20020923
US 20070087025	A1 Provisional	US 2001-325049P	20010926
US 20070087025	A1 Cont of	WO 2002-US30160	20020923
US 20070087025	A1 Cont of	US 2004-490991	20040329
US 20070087025	A1	US 2005-56323	20050210

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1436018	A1 Based on	WO 2003026717 A
AU 2002336761	A1 Based on	WO 2003026717 A

PRIORITY APPLN. INFO: US 2001-325049P 20010926  
 WO 2002-US30160 20020923  
 US 2004-490991 20040329  
 US 2005-56323 20050210

## INT. PATENT CLASSIF.:

IPC ORIGINAL: A61F0002-00 [I,A]; A61F0002-00 [I,C]; A61K0031-726 [I,C];  
 A61K0031-727 [I,A]; B05D0003-02 [I,A]; B05D0003-02 [I,C]  
 IPC RECLASSIF.: A61K0033-00 [I,A]; A61K0033-00 [I,C]; A61K0009-52 [I,A];  
 A61K0009-52 [I,C]; A61L0031-08 [I,C]; A61L0031-10 [I,A];  
 A61L0031-14 [I,C]; A61L0031-16 [I,A]

## ECLA:

USCLASS NCLM: A61K0033-00; A61L0031-10; A61L0031-16  
 424/423.000  
 NCLS: 427/002.260

## BASIC ABSTRACT:

WO 2003026717 A1 UPAB: 20050706

NOVELTY - Preparation of a nitric oxide (NO) releasing substrate comprises:

- (1) contacting an amine functionalized silane (A) with a substrate to form a single layer substrate;
- (2) contacting the single layer substrate with at least one additional (A) to form a multilayer substrate;
- (3) optionally contacting the substrate with a nucleophile, and
- (4) contacting the multi-layer substrate with NO gas.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a NO releasing substrate (S1) having NO bonded through a NO releasing nucleophile residue bonded to a polysilane coating, which is bonded to the substrate and comprises at least one amine-functionalized silane, or comprising a polysilane coating comprising at least two layers of amine functionalized silane and a NO releasing group N2O2-.

ACTIVITY - Cytostatic; Vasotropic; Antiinflammatory; Cardiant; Hypotensive.

MECHANISM OF ACTION - None given.

USE - Used for preparing NO releasing substrate and NO releasing medical devices such as an arterial stent, guide wire, catheter, trocar needle, bone anchor, bone screw, protective plating, hip and joint implant, electrical lead, sensor, probe, blood filter including filtration media, tubing, pacemaker, pacemaker lead, heart valve, pulse generator, cardiac defibrillator, spinal stimulator, brain and nerve stimulator, introducer, amniocentesis and biopsy needles, cannulae, drainage tube, shunt, transducer, implant, specula, irrigator, nozzle, caliper, forceps, retractor, vascular graft, personal hygiene item, absorbable and non-absorbable suture and wound dressing (claimed). The NO releasing substrate is useful for treating or preventing ischemic heart disease, restenosis, cancer, hypertension, infectious diseases and sexual dysfunction.

ADVANTAGE - The NO releasing medical device is compatible with an animal body, including human body, internal organs, blood vessels, tissues and cells, and is capable of sustained release of NO for periods lasting for days to a few weeks or longer under physiological conditions. The NO releasing substrates generate 1000-40000 (preferably 2000-35000, especially 8000-13000) pmoles/mm2 of coated substrate. The iteratively layered substrate provides localized or sustained release of NO, which provides in situ cytostatic, antithrombogenic, vasodilatory, antiproliferative and other pharmacological effects. MANUAL CODE: CPI: A12-V00V; B04-C03; B05-A03; B05-B01B; B05-B02C;

B05-C03; B11-C02; B11-C03; B11-C04; B11-C06; B12-M10A;  
B14-A01; B14-F01B; B14-F01G; B14-F02B; B14-F04; B14-H01;  
B14-P02

#### TECH

ORGANIC CHEMISTRY - Preferred Method: (A) Is hydrolyzed in an aqueous reagent. (A) Is mixed with at least one functionalized and non functionalized silane (B). (A) Is dissolved in a solvent or a solvent mixture containing water (at least one molar equivalent). The method also involves prior to (2), treating the amine functionalized siliceous substrate with a biocompatible topcoat. In (S1), an additive is contacted with the first amine functionalized silane.  
Preferred Components: (A) Comprises 3-aminopropyltrimethoxysilane, 3-aminopropyltriethoxysilane, 3-aminopropyltrimethoxysilane, N-(3-acryloxy-2-hydroxypropyl)-3-aminopropyltriethoxysilane, N-(2-(aminothethyl)-3-aminopropyltris(2-ethyl-hexoxy)silane, 3-(meta-aminophenoxy)propyltrimethoxysilane, 3-(1-aminopropoxy)-3,3-dimethyl-1-propenyl-trimethoxysilane, 3-aminopropyltris(methoxyethoxyethoxy)silane, 3-aminopropylmethyldiethoxysilane, 3-aminopropyltris(trimethylsiloxy)silane, bis(dimethylamino)methylchlorosilane, bis(dimethylamino)methylmethoxysilane, bis(dimethylamino)phenylchlorosilane, bis(dimethylamino)phenylethoxysilane, bis(2-hydroxyethyl)-3-aminopropyltriethoxysilane,

bis(2-hydroxyethyl)-3-aminopropyltrimethoxysilane,  
 bis(3-triethoxysilyl)propylamine, 1,4-bis(3-  
 (trimethoxysilyl)propyl)ethylenediamine,  
 (N,N-diethyl-3-aminopropyl)trimethoxysilane,  
 (N,N-dimethyl-3-aminopropyl)trimethoxysilane,  
 N-phenylaminopropyltrimethoxysilane,  
 trimethoxysilylpropyldiethylenetriamine,  
 trimethoxysilylpropyl-pentaethylenehexamine,  
 triethoxysilyloctyldiethylenetriamine,  
 triisopropoxysilylpentaethylenehexamine,  
 n-trimethoxysilylpropyl-N,N,N-trimethylammonium chloride,  
 3-aminopropylmethyldiethoxysilane,  
 2-(perfluorooctyl)ethyltriainotrimethoxysilane,  
 4-aminobutyltrimethoxysilane, N-(6-aminoethyl)aminopropyl-  
 trimethoxysilane, 3-(dimethoxymethylsilylpropyl)diethylenetriamine,  
 N-(2-aminoethyl)-N'-(3-(dimethoxymethylsilylpropyl) diethylenetriamine,  
 N-(2-aminoethyl)-N'-(3-(dimethoxymethylsilyl)propyl)-1,2-ethanediamine,  
 amine-functionalized polydimethylsiloxane copolymer or  
 bis-aminosilane (preferably bis-aminosilane selected from  
 bis-(trimethoxysilylpropyl)amine, bis-(triethoxysilylpropyl)amine,  
 bis-(triethoxysilylpropyl)ethylene diamine,  
 N-(2-(vinylbenzylamino)ethyl)-3-aminopropyltrimethoxysilane,  
 aminoethylaminopropyltrimethoxysilane, trimethoxysilyl-modified  
 polyethylenimine and/or methyltrimethoxysilyl-modified polyethylenimine).  
 (B) Comprises 2-acetoxyethyltrichlorosilane,  
 2-acetoxyethyltrimethylchlorosilane, acryloxypropylmethyldimethoxysilane,  
 3-acryloxypropyltrichlorosilane, 3-acryloxypropyltrimethoxysilane,  
 adamantylethyltrichlorosilane, allyldimethylchlorosilane,  
 allyltrichlorosilane, allyltriethoxysilane, allyltrimethoxysilane,  
 amyltrichlorosilane, amyltriethoxysilane, amyltrimethoxysilane,  
 5-(bicycloheptenyl)methyldichlorosilane,  
 5-(bicycloheptenyl)methyltriethoxysilane,  
 5-(bicycloheptenyl)methyltrimethoxysilane,  
 5-(bicycloheptenyl)dimethylmethoxysilane,  
 5-(bicycloheptenyl)methyldiethoxysilane, bis(3-cyanopropyl)dichlorosilane,  
 bis(3-cyanopropyl)diethoxysilane, bis(3-cyanopropyl)dimethoxysilane,  
 1,6-bis(trimethoxysilyl)hexane, bis(trimethylsiloxy)methylsilane,  
 bromomethyldimethylchlorosilane, bromomethyldimethylmethoxysilane,  
 3-bromopropyltrichlorosilane, 3-bromopropyltriethoxysilane,  
 n-butyldimethylchlorosilane, n-butyldimethylmethoxysilane,  
 tert-butyldimethylchlorosilane, tert-butyldimethylisopropylsilane,  
 tert-butyldiphenylchlorosilane, tert-diphenylmethoxysilane,  
 n-butyldimethyldichlorosilane, n-butyldimethoxysilane,  
 n-butyldiethoxysilane, n-butyldiisopropylsilane, n-butyltrimethoxysilane,  
 (10-carbomethoxydecyl)dimethylchlorosilane,  
 2-(carbomethoxy)ethyltrimethoxysilane, 4-chlorobutyldimethylmethoxysilane,  
 4-chlorobutyldimethylethoxysilane, 2-chloroethylmethyldiisopropylsilane,  
 2-chloroethyltriethoxysilane, chloromethyldimethylethoxysilane,  
 para-(chloromethyl)-phenyltriethoxysilane,  
 para-(chloromethyl)phenyltrimethoxysilane, chloromethyltriethoxysilane,  
 chlorophenyltrimethoxysilane, 3-chloropropylmethyldimethoxysilane,  
 3-chloropropyltriethoxysilane, 2-(4-  
 chlorosulfonylphenyl)ethyltrichlorosilane,  
 2-cyanoethylmethyldimethylmethoxysilane, (cyanomethylphenethyl)triethoxysilane,  
 3-cyanopropyltrimethoxysilane, 3-cyanopropyltrimethoxysilane,  
 2-(3-cyclohexenyl)ethyltrimethoxysilane, cyclohexyldiethoxymethylsilane,  
 cyclopentyltrimethoxysilane, di-tert-butoxydiacetoxysilane,  
 di-n-butyldimethoxysilane, dicyclopentyltrimethoxysilane,  
 diethyldiethoxysilane, diethyldimethoxysilane, diethyldibutoxysilane,  
 diethylphosphatoethyltriethoxysilane,

diethyl(triethoxysilylpropyl)malonate, di-n-hexyldimethoxysilane, diisopropyldichlorosilane, diisopropyldimethoxysilane, dimethyldiacetoxysilane, dimethyldimethoxysilane, 2,3-dimethylpropyldimethylethoxysilane, dimethylethoxysilane, dimethylmethoxychlorosilane, dimethyl-n-octadecylchlorosilane, N,N-dimethyltriethylsilylamine, 1,3-dimethyltetramethoxydisiloxane, diphenylchlorosilane, diphenyldiacetoxysilane, diphenyldiethoxysilane, diphenyldifluorosilane, diphenyldimethoxysilane, diphenylmethylethoxysilane, 2-(diphenylphosphino)ethyltriethoxysilane, divinylethoxysilane, divinylchlorosilane, n-docosylmethyldichlorosilane, n-dodecyltriethoxysilane, 2-(3,4-epoxycyclohexyl)ethyltrimethoxysilane, ethyldimethylchlorosilane, ethyltriacetoxysilane, ethyltriethoxysilane, ethyltrimethoxysilane, 3-glycidoxypropyldimethylethoxysilane, (3-glycidoxypropyl)methyldimethoxysilane, 3-glycidoxypropyltrimethoxysilane, (3-heptafluoroisopropoxy)propylmethyldichlorosilane, n-heptylmethyldichlorosilane, n-heptylmethyldimethoxysilane, n-hexadecyltrichlorosilane, n-hexadecyltriethoxysilane, 6-hex-1-enyltrichlorosilane, 5-hexenyltrimethoxysilane, n-hexylmethyldichlorosilane, n-hexyltrichlorosilane, n-hexyltriethoxysilane, n-hexyltrimethoxysilane, 3-iodopropyltriethoxysilane, 3-iodopropyltrimethoxysilane, isobutyldimethylchlorosilane, isobutyldimethyldichlorosilane, isobutyltrimethoxysilane, isobutyltriethoxysilane, 3-isocyanatopropyldimethylchlorosilane, isocyanatopropyldimethylmethoxysilane, 3-isocyanatopropyltriethoxysilane, isooctyltrichlorosilane, isooctyltriethoxysilane, isopropyldimethylchlorosilane, 3-mercaptopropylmethyldimethoxysilane, 3-mercaptopropyltrimethoxysilane, 3-mercaptopropyltriethoxysilane, 3-methacryloxypropylmethyldiethoxysilane, 3-methacryloxypropylmethyldimethoxysilane, 3-methacryloxypropyltrimethoxysilane, 3-(4-methoxyphenyl)propyltrichlorosilane, 3-(4-methoxyphenyl)propyltrimethoxysilane, methylcyclohexyldichlorosilane, methylcyclohexyldiethoxysilane, methyldiacetoxysilane, methyldichlorosilane, methyldiethoxysilane, methyldimethoxysilane, methyldodecyldichlorosilane, methyldodecyldiethoxysilane, methylisopropyldichlorosilane, methyl-n-octadecyldimethoxysilane, methyl-n-octyldichlorosilane, (para-methylphenethyl)methyldichlorosilane, methyl(2-phenethyl)dimethoxysilane, methylphenyldiisopropoxysilane, methylphenyldiethoxysilane, methylphenyldimethoxysilane, methyl-n-propyldimethoxysilane, methyltriacetoxysilane, methyltriethoxysilane, neophylmethyldiethoxysilane, n-octadecyldimethylmethoxysilane, n-octadecyltriethoxysilane, n-octadecyltrimethoxysilane, 7-oct-1-enylmethylchlorosilane, 7-oct-enyltrimethoxysilane, n-octyldiisopropylchlorosilane, n-octyldimethylchlorosilane, n-octyldimethyldimethoxysilane, n-octyltriethoxysilane, 1,1,1,3,3-pentamethyl-3-acetoxydisiloxane, phenethyldimethylchlorosilane, phenethyldimethylmethoxysilane, phenethyltriethoxysilane, phenyl(3-chloropropyl)dichlorosilane, phenyldimethylacetoxysilane, phenyldimethylethoxysilane, phenylmethylvinylchlorosilane, (3-phenylpropyl)dimethylchlorosilane, phenyltriethoxysilane, phenyltrimethoxysilane, phthalocyanatodimethoxysilane, n-propyldimethylchlorosilane, n-propyltrimethoxysilane, styrylethyltrimethoxysilane, tetra-n-butoxysilane, tetraethoxysilane, tetramethoxysilane, tetraproxysilane, (tridecafluoro-1,1,2,2-tetrahydrooctyl)-1-trimethoxysilane, triethoxysilane, triethoxysilylpropylethyl carbamate, triethylacetoxysilane,

triethylethoxysilane, (3,3,3-trifluoropropyl)-methylchlorosilane, (3,3,3-trifluoropropyl)methyldimethoxysilane, (3,3,3-trifluoropropyl)triethoxysilane, triisopropylchlorosilane, trimethoxysilane, 1-trimethoxysilyl-2-(para,meta-chloromethyl)-phenylethane, trimethylethoxysilane, 2-(trimethylsiloxy)ethyl methacrylate, para-trimethylsiloxy nitrobenzene, ortho-trimethylsilylacetate, triphenylethoxysilane, n-undecyltrimethoxysilane, vinyltrimethylethoxysilane, vinyltriethoxysilane and/or vinyltrimethoxysilane. The amine group of (A) is diethylenetriamine, pentaethylenhexamine and/or piperazine. The substrate comprises a NO releasing functional group that is an O2-protected diazeniumdiolate of (A), or a natural and/or synthetic fibrous material (preferably cotton, linen, silk, hemp and/or wool). INORGANIC CHEMISTRY - Preferred Substrate: The substrate comprises a metal (preferably stainless steel, gold or gold alloys, metal substrate having a gold containing coating, titanium and titanium alloy, metal substrate having an iron or iron-containing coating, metal substrate having titanium-containing coating, nickel or nickel alloy, metal substrate having nickel-containing coating, silicon and silicon alloy, metal substrate having silicon-containing coating, aluminum and aluminum alloy, metal substrate having aluminum-containing coating, zinc and zinc alloy, metal substrate having zinc-containing coating, magnesium alloy, tin and tin alloy, metal substrate having tin-containing coating, copper and copper alloy and/or metal substrate having copper-containing coating; especially stainless steel). CERAMICS AND GLASS - Preferred Substrate: The substrate comprises ceramic and/or glass (preferably soda lime glass, strontium glass, barium glass, borosilicate glass, glass-ceramics comprising lanthanum, alumina, silicon nitride, boron carbide, boron nitride and/or silica). POLYMERS - Preferred Substrate: The substrate comprises plastic and/or rubber (preferably acrylic, acrylonitrile-butadiene-styrene, polyphenylene oxide, polyimide, polystyrene, polypropylene, polyethylene, polytetrafluoroethylene, polyvinylidene, polyethylenimine, polyester, polyether, polyacetone, polyurethane, polycarbonate, polyethylene terephthalate, silicone, fluorosilicone, nitrile rubber, silicone rubber, fluorosilicone rubber, polyisoprene, sulfur-cured rubber and/or isoprene-acrylonitrile rubber). Preferred Components: The amine group of (A) is low and high molecular weight linear/branched polyethylenimine and/or amine-functionalized divinylbenzene. The biocompatible topcoat is a lubricious hydrogel (preferably homo- or hetero-polyether, polyol, polyurea, polyacetone, albumin-, heparin- and/or polyphosphorylcholine-functionalized polymer).

ABEX EXAMPLE - Trimethoxysilylpropyldiethylenetriamine (2 g), dimethyldimethoxysilane (0.5 g), methanol (7.125 g) and deionized water (0.375 g) were mixed for several minutes in a small vial to obtain a silane solution. A methanol/water/methanol cleaned stainless steel stent S670 (RTM; stent) was attached to a Microman M50 (RTM; piston) and then dipped for 5 seconds in the silane solution, flushed under a stream of nitrogen gas at 138 kPa (20 psi) for 15 seconds, dipped again for 5 seconds in the silane solution, and flushed under a stream of nitrogen gas at 138 kPa (20 psi) for 15 seconds. The stent was then placed in a vacuum at 100degreesC for 10 minutes to cure under a 100 mm of Hg vacuum. - After the stent was removed from the oven and allowed to cool to room temperature (rt) under the blanket of nitrogen, the process was repeated for eight additional times for a total of nine coating cycles. After cooling to rt, the reiteratively coated stent was placed in a test tube and immersed in acetonitrile. The

tube was transferred to a Parr (RTM; hydrogenation pressure vessel) and oxygen was removed from the vessel using repeated cycles of pressurization/depressurization with argon gas, followed by the introduction of NO at a pressure of 276 kPa (40 psi). - The tube containing the coated stent was exposed to the nitric oxide (NO) gas for 24 hours. Then the acetonitrile was decanted and the stent was repeatedly washed with diethyl ether (20 ml), and flushed dry under a stream of nitrogen gas. The NO content of the diazeniumdiolated coated stent was determined by immersing the coupon in 0.1 M phosphate buffer, pH 7.4 at 37/degreesC, where chemiluminescence-detectable NO was evolved over a 7 day period of analysis. The total NO release was measured at 37800 pmoles/mm2.

L56 ANSWER 6 OF 18 WPIX COPYRIGHT 2009 THOMSON REUTERS on STN  
 ACCESSION NUMBER: 2003-417243 [39] WPIX  
 DOC. NO. CPI: C2003-110436 [39]  
 DOC. NO. NON-CPI: N2003-332666 [39]  
 TITLE: Transparent multi-layer  
 coating for substrate e.g. window of  
 vehicles, comprises surface hardening layer,  
 multi-layer abrasion-resistant coating  
 and hydrophobic dry coating sequentially formed  
 on substrate  
 DERWENT CLASS: A26; A82; A89; G02; P42; P73  
 INVENTOR: RICHARD D A  
 PATENT ASSIGNEE: (RICH-I) RICHARD D A; (VTEC-N) VTEC TECHNOLOGIES INC  
 COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC
US 20030026965	A1 20030206	(200339)*	EN	5[1]	
US 6737105	B2 20040518	(200433)	EN		

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 20030026965	A1	US 2001-916692	20010727

PRIORITY APPLN. INFO: US 2001-916692 20010727  
 INT. PATENT CLASSIF.:  
 IPC RECLASSIF.: C03C0017-42 [I,A]; C03C0017-42 [I,C]  
 ECLA: C03C0017-42  
 USCLASS NCLM: 427/162.000  
 NCLS: 427/163.100; 427/164.000; 427/165.000; 427/248.100;  
 427/255.700; 427/294.000; 427/402.000; 427/419.100;  
 427/419.200; 427/419.300

## BASIC ABSTRACT:

US 20030026965 A1 UPAB: 20050530  
 NOVELTY - The transparent multi-layer coating (10) comprises a surface hardening layer (14), a multi-layer abrasion-resistant coating (16) and a hydrophobic dry coating (28), sequentially formed on a substrate (12).  
 USE - For substrate such as window, mirror of vehicles, aircraft and buildings.  
 ADVANTAGE - The multi-layer coating increases the mechanical strength, abrasion resistance, durability and weatherability of transparent substrate.  
 DESCRIPTION OF DRAWINGS - The figure shows cross-sectional view of multi-layer coating.  
 multi-layer coating (10)

substrate (12)

surface hardening layer (14)

abrasion-resistant coating (16)

hydrophobic dry coating (28) MANUAL CODE:

CPI: A06-A00E1;

A12-B01; A12-B05; G02-A05

TECH

INORGANIC CHEMISTRY - Preferred Compound: The abrasion-resistant coating comprises alternating layers of silicon dioxide and zirconium dioxide.

POLYMERS - Preferred Material: The surface hardening layer is an organo-silicon polymer material, preferably triethoxy methyl silane. The hydrophobic coating comprises a perfluoroalkyl silane layer.

L56 ANSWER 7 OF 18 WPIX COPYRIGHT 2009 THOMSON REUTERS on SIN

ACCESSION NUMBER: 2003-289846 [28] WPIX

DOC. NO. CPI: C2003-075197 [28]

DOC. NO. NON-CPI: N2003-230579 [28]

TITLE: Multi-layer composite of two or more polymeric layers for coating, e.g. automotive vehicles, includes boron-containing compounds from boric acid and/or its equivalents in first and/or second polymeric layer

DERWENT CLASS: A26; A82; E12; E19; G02; P73; P42

INVENTOR: ANDERSON L G; BURGMAN J W; HOCKSWENDER T R; MOROW K A; MORROW K A; SADVARY R J; SIMPSON D A; TYEBJEE S; ANDERSON L; BURGMAN J; HOCKSWENDER T; MOROW K; SADVARY R; SIMPSON D

PATENT ASSIGNEE: (ANDE-I) ANDERSON L G; (BURG-I) BURGMAN J W; (HOCK-I) HOCKSWENDER T R; (MORO-I) MOROW K A; (PITT-C) PPG IND OHIO INC; (SADV-I) SADVARY R J; (SIMP-I) SIMPSON D A; (TYEB-I) TYEBJEE S

COUNTRY COUNT: 99

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2003011583	A2	20030213	(200328)*	EN	128[0]	<--
US 20030118846	A1	20030626	(200343)	EN		<--
US 6592999	B1	20030715	(200348)	EN		<--
US 20030232222	A1	20031218	(200401)	EN		<--
KR 2004018541	A	20040303	(200443)	KO		
AU 2002355727	A1	20030217	(200452)	EN		<--
EP 1456012	A2	20040915	(200460)	EN		
JP 2005503938	W	20050210	(200511)	JA	218	
US 20050042463	A1	20050224	(200515)	EN		
AU 2002355727	A8	20051027	(200624)	EN		
KR 614488	B1	20060822	(200714)	KO		
JP 2007269032	A	20071018	(200770)	JA	85	
US 7329468	B2	20080212	(200813)	EN		
EP 1456012	B1	20080910	(200861)	EN		
DE 60228883	E	20081023	(200872)	DE		
JP 4299664	B2	20090722	(200948)	JA	74	

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003011583	A2	WO 2002-US23256	20020723

US 20030118846 A1	US 2001-919200 20010731
US 6592999 B1	US 2001-919200 20010731
US 20030232222 A1 Cont of	US 2001-919200 20010731
US 20050042463 A1 Cont of	US 2001-919200 20010731
US 7329468 B2 Cont of	US 2001-919200 20010731
AU 2002355727 A1	AU 2002-355727 20020723
AU 2002355727 A8	AU 2002-355727 20020723
DE 60228883 E	DE 2002-60228883 20020723
EP 1456012 A2	EP 2002-752510 20020723
EP 1456012 B1	EP 2002-752510 20020723
DE 60228883 E	EP 2002-752510 20020723
EP 1456012 A2 PCT Application	WO 2002-US23256 20020723
JP 2005503938 W PCT Application	WO 2002-US23256 20020723
KR 614488 B1 PCT Application	WO 2002-US23256 20020723
EP 1456012 B1 PCT Application	WO 2002-US23256 20020723
DE 60228883 E PCT Application	WO 2002-US23256 20020723
JP 2005503938 W	JP 2003-516795 20020723
JP 2007269032 A Div Ex	JP 2003-516795 20020723
US 20030232222 A1	US 2003-402823 20030328
US 20050042463 A1 Cont of	US 2003-402823 20030328
US 7329468 B2 Cont of	US 2003-402823 20030328
KR 2004018541 A	KR 2004-701529 20040130
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US 20050042463 A1	US 2004-935643 20040907
US 7329468 B2	US 2004-935643 20040907
JP 2007269032 A	JP 2007-121978 20070502
JP 4299664 B2 PCT Application	WO 2002-US23256 20020723
JP 4299664 B2	JP 2003-516795 20020723

## FILING DETAILS:

PATENT NO	KIND		PATENT NO	
DE 60228883	E	Based on	EP 1456012	A
KR 614488	B1	Previous Publ	KR 2004018541	A
US 20030232222	A1	Cont of	US 6592999	B
US 20050042463	A1	Cont of	US 6592999	B
US 7329468	B2	Cont of	US 6592999	B
AU 2002355727	A1	Based on	WO 2003011583	A
EP 1456012	A2	Based on	WO 2003011583	A
JP 2005503938	W	Based on	WO 2003011583	A
AU 2002355727	A8	Based on	WO 2003011583	A
KR 614488	B1	Based on	WO 2003011583	A
EP 1456012	B1	Based on	WO 2003011583	A
DE 60228883	E	Based on	WO 2003011583	A
JP 4299664	B2	Previous Publ	JP 2005503938	W
JP 4299664	B2	Based on	WO 2003011583	A

PRIORITY APPLN. INFO: US 2001-919200 20010731  
 US 2003-402823 20030328  
 US 2004-935643 20040907

## INT. PATENT CLASSIF.:

MAIN: B05D007-00; B32B027-06; B32B027-18  
 SECONDARY: C08K003-38; C08K005-06; C08K005-55; C08L083-04;  
 C08L083-05; C09D133-00; C09D167-00; C09D171-00;  
 C09D175-04; C09D183-00; C09D183-04; C09D183-05;  
 C09D183-06; C09D183-07; C09D183-08; C09J011-00;  
 C09J183-05; C09J183-06; C09J183-07; C09J183-08

IPC ORIGINAL: B32B0001-00 [I,A]; B32B0001-00 [I,C]; B32B0001-00 [I,A];  
 B32B0001-00 [I,C]; B32B0027-06 [I,A]; B32B0027-06 [I,C];

## 10/588459

B32B0027-18 [I,A]; B32B0009-04 [I,A]; B32B0009-04 [I,C];  
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 C09D0183-05 [I,A]; C09D0183-05 [I,C]; C09D0183-06 [I,A];  
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 B05D0007-00N3C; C08J0005-12; C08K0003-38; C09D0007-12D  
 L05D0007:00N3C4  
 428/447.000; 428/704.000  
 ECLA:  
 ICO:  
 USCLASS NCLM:  
 NCLS:  
 156/326.000; 156/330.000; 427/451.000; 428/413.000;  
 428/474.400; 428/480.000; 428/522.000; 524/858.000;  
 525/477.000; 525/478.000; 528/012.000; 528/025.000  
 JAP. PATENT CLASSIF.:  
 MAIN/SEC.:  
 B32B0027-18 Z; C08K0005-06; C08K0005-55; C08L0083-04;  
 C08L0083-05; C09D0133-00; C09D0167-00; C09D0171-00;  
 C09D0175-04; C09D0183-00; C09D0183-05; C09D0183-06;  
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 C09J0183-08  
 MAIN:  
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 SECONDARY:  
 C08K0005-06; C08K0005-55; C08L0083-04; C08L0083-05;  
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 C09J0183-07; C09J0183-08  
 FTERM CLASSIF.:  
 4F100; 4J002; 4J038; 4J040; 4F100/AA02.B; 4F100/AA02.C;  
 4F100/AA31; 4F100/AB01.C; 4F100/AH03.H; 4F100/AH04.K;  
 4F100/AH06.B; 4F100/AH06.C; 4F100/AH08.B; 4F100/AH08.C;  
 4F100/AH10.A; 4F100/AH10.B; 4F100/AK01.A; 4F100/AK01.B;  
 4F100/AK01.C; 4F100/AK24.B; 4F100/AK24.C; 4F100/AK24.J;  
 4F100/AK25.A; 4F100/AK25.B; 4F100/AK35.B; 4F100/AK35.C;  
 4F100/AK35.H; 4F100/AK41.A; 4F100/AK41.B; 4F100/AK41.C;  
 4F100/AK51.A; 4F100/AK51.B; 4F100/AK51.C; 4F100/AK51.H;  
 4F100/AK52.A; 4F100/AK52.B; 4F100/AK52.C; 4F100/AK52.K;  
 4F100/AK53.B; 4F100/AK53.C; 4F100/AK53.J; 4F100/AK54.A;  
 4F100/AK54.B; 4F100/AK54.C; 4F100/AL01.B; 4F100/AL01.C;  
 4F100/AL05.A; 4F100/AL05.B; 4F100/AL05.C; 4F100/AL09.C;  
 4F100/AT00.A; 4F100/AT00.C; 4F100/BA02; 4F100/BA03;  
 4F100/BA04; 4F100/BA05; 4F100/BA07; 4F100/BA10.A;

4F100/BA10.B; 4F100/BA10.C; 4F100/CA02.A; 4F100/CA02.B;  
 4F100/CA02.C; 4F100/CA13.A; 4F100/CA13.B; 4F100/CB00.B;  
 4J038/CG00.1; 4J002/CP03.1; 4J002/CP04.1; 4J038/DA13.2;  
 4J038/DD00.1; 4J038/DF00.1; 4J038/DG00.1; 4J038/DL00.1;  
 4J038/DL04.2; 4J038/DL05.2; 4J038/DL12.2; 4J040/EB09.2;  
 4J040/EC00.2; 4J002/ED02.7; 4J040/EF28.2; 4F100/EH46;  
 4F100/EJ08; 4J040/EK04.1; 4J040/EK06.1; 4J040/EK07.1;  
 4J040/EK08.1; 4J002/EV01.6; 4J038/GA01; 4J038/GA03;  
 4J038/GA06; 4J038/GA09; 4J038/GA11; 4F100/GB32;  
 4J002/GH00; 4J002/GJ01; 4J038/HA47.6; 4J040/HB22;  
 4J040/HB26; 4J040/HB44; 4J040/HC04; 4J040/HC05;  
 4J040/HC16; 4J040/HD38; 4J038/JA20; 4J038/JA21;  
 4J038/JA35; 4J038/JA39; 4J038/JA69; 4F100/JB02;  
 4J038/JB04; 4J038/JB05; 4F100/JB13.A; 4F100/JB13.B;  
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 4F100/JK09; 4F100/JL11; 4F100/JN21; 4J038/KA03;  
 4J040/KA16; 4J040/MA10; 4J038/NA04; 4J038/NA11;  
 4J038/NA12; 4J038/PA19; 4J038/PB07

## BASIC ABSTRACT:

WO 2003011583 A2 UPAB: 20090728

NOVELTY - Providing an improved curable coating composition used to form a multilayer composite coating comprising boron-containing compounds which improve the interlayer adhesion of the first and second polymeric layers.

DETAILED DESCRIPTION - A multi-layer composite of two or more polymeric layers comprises at least a first polymeric layer formed on a substrate and a second polymeric layer over the first layer, and boron-containing compound(s) from boric acid and/or its equivalents in the first and/or second polymeric layers. At least one of the polymeric layer is formed from a thermosetting composition.

INDEPENDENT CLAIMS are also included for:

(1) a curable coating composition used to form a multilayer composite coating, where the inclusion in the curable coating composition of a boron-containing compound is selected from boric acid and/or boric acid equivalents in amounts sufficient to improve the interlayer adhesion between the first and second coating layer;

(2) a method of improving the intercoat adhesion of a multilayer composite comprising two or more polymeric layer, at least one being forming from a thermosetting composition, the composite comprising at least a first polymeric layer formed over a portion of a substrate, and a first polymeric layer formed over at least a portion of a second polymeric layer, where in the absence of a boron-containing compound, the first polymer and second polymeric layers have poor interlayer adhesion;

(3) a curable coating composition formed from components comprising:

(A) at least one film-forming polymer comprising at least one reactive functional group;

(B) at least one reactant comprising at least one functional group that is reactive with the reactive functional group of the polymer (A); and

(C) at least one compound selected from borates, aluminates, titanates, zirconates, silicates, siloxanes, and/or silanes, where each component is different; and

(4) a substrate comprising a substrate and a coating composition over at least a portion of the substrate.

USE - For coating automotive vehicles, aerospace applications, floor coverings such as ceramic tiles and wood flooring, and packaging coatings.

ADVANTAGE - The boron-containing compound improves the interlayer adhesion between the two coating layers. It also provides excellent interlayer adhesion between cured top coat and applied windshield adhesive without the intervening step of applying an adhesion promoting-primer.

MANUAL CODE: CPI: A08-M01C; A12-B01; E05-B03; E05-C01; E05-C02; E05-E;

E05-L01; E05-M; E10-E04J; E10-E04M2; E31-Q06; E31-Q07;  
G02-A01; G02-A02; G02-A05

TECH

ORGANIC CHEMISTRY - Preferred Component: The boron-containing compound comprises boric acid from triisopropyl borate, trimethyl borate, triphenyl borate, trimethoxyboroxine, polysiloxane borate, and/or acrylic borate; or a boric acid derivative from triethanolamineborate, mannitol borate, n-propanol amine borate, trimethylpropane borate, and/or glycerol borate.

POLYMERS - Preferred Component: Both of the two polymeric layers are formed from thermosetting compositions.

The boron-containing compound comprises the reaction product from at least one polysiloxane comprising at least one of structural units

$R_1nR_2mSiO(4-nm)/2$ ; and a boron-containing compound from boric acid and/or boric acid equivalents. It comprises boric acid and/or boric acid ester.

The polysiloxane comprises ungelled non-hydrolyzable organic polysiloxane(s) having reactive functional groups and of formula

$R-Si(R)(R)-O-(Si-O)n(R)(R)-(Si-O)m(R)(R)-Si(R)(R)-R$  or  
 $R-Si(R)(R)-O-(Si-O)n(R)(R)-(Si-O)m'(R)(Ra)-Si(R)(Ra)-R$ .

It can be the reaction product of the silicon hydride-containing polysiloxane of formula  $R-Si(R)(R)-O-(Si(R)(R)-O)_n-R$ .

The hydroxyl functional material comprises primary hydroxyl group(s) and unsaturated bond(s) capable of undergoing hydrosilylation reaction.

The first polymeric layer is formed from a thermosetting composition comprising a boron-containing compound to provide 0.001-5 wt.% boron based on the weight of total resin solids in the composition.

The first and/or second polymeric layer comprises a cured layer formed from a thermosetting composition comprising film-forming polymer(s) having reactive functional groups, curing agent(s) having functional groups reactive with the functional groups of the film forming polymer, and boron-containing compound(s).

The film-forming polymer comprises polyurethane polymer, polyether polymer, silicon-based polymer, polyester polymer, and/or preferably acrylic polymer.

It can comprise functional groups from carboxyl, isocyanate, blocked polyisocyanate, prim. amine, sec. amine, amide, urea, urethane, vinyl, unsaturated ester, maleimide, fumarate, anhydride, hydroxy alkylamide, epoxy, or preferably hydroxyl and/or carbamate.

It may comprise the residue of a beta-hydroxy group-containing monomers from at least one of the reaction product of an ethylenically unsaturated acid functional monomer and an epoxy functional compound having no ethylenic unsaturated; and the reaction product of an ethylenically unsaturated, epoxy functional monomer and a saturated carboxylic acid.

The curing agent comprises polyisocyanates, blocked polyisocyanates, polycarboxylic acids, polyanhydrides, polyepoxides, polyamines, polyols, and/or preferably aminoplast resins and blocked isocyanate compound(s) comprising a tricarbamoyl triazine compound.

The first thermosetting composition comprises a base coating composition or a pigment base coating composition, and the second thermosetting composition comprises a top coating composition, or a pigment-containing top coating composition.

The second thermosetting composition comprises a pigment-free coating composition or adhesive composition.

The first polymeric layer is formed on a metallic or elastomeric substrate.

It is formed on a substrate comprising a substrate and polymeric layer(s) formed from thermosetting film-forming composition(s).

R1 = H, OH, monovalent hydrocarbon, or monovalent siloxane;

R2 = active hydrocarbon(s), preferably OR';

m, n = positive number fulfilling the requirements of m is greater than 0 but less than 4, n is greater than 0 but less than 4, and (m+n) is 2 to less than 4;  
 R' = H or 1-20C alkyl;  
 m = at least 1;  
 m' = 0-75;  
 n = 0-75;  
 n' = 0-75;  
 R = H, monovalent hydrocarbons, and/or monovalent siloxane;  
 Ra = -R3-X or R3-X;  
 -R3 = alkylene, oxyalkylene, alkylene aryl, (oxy)alkenylene, or alkenylene aryl;  
 R3 = alkenylene, (oxy)alkylene, alkylene aryl, or alkenylene;  
 X = a group comprising reactive functional group(s) from hydroxyl, carboxyl, prim. amine, sec. amine, amide, carbamate, urea, anhydride, hydroxy alkylamide, or epoxy;  
 n' = 0-100 so that the mole percent of hydrogen-bonded silicon atoms to non-hydrogen-bonded silicon atoms is 10-100%  
 At least one of the group R is H.

ABEX EXAMPLE - A film-forming composition was prepared from 93.4 pbw premix comprising 16 pbw methyl n-amyyl ketone, 16 pbw Butyl Cellosolve (TM) acetate, 3.5 pbw Butyl Carbitol (TM), 3 pbw TINUVIN 928 (TM), 0.4 pbw TINUVIN 292 (TM), 10.3 pbw silica dispersion, 41.2 pbw RESIMENE 757 (TM), 0.5 pbw polybutyl acrylate, and 2.5 pbw blocked acid catalyst; 81.8 pbw pre-mix comprising 44.4 pbw carbamoylated acrylic and 38.9 pbw carbamoylated polyester; 1.79 pbw siloxane borate; 4.7 pbw Butyl Cellusolve (TM) acetate; 4.7 pbw methyl n-amyyl ketone; and 1.04 pbw Butyl Carbitol (TM) acetate. It was spray applied to a pigmented basecoat to form color-plus-clear composite coatings over primed electrocoated steel panels. It exhibited excellent (100%) cohesive failure.

L56 ANSWER 8 OF 18 WPIX COPYRIGHT 2009 THOMSON REUTERS on STN  
 ACCESSION NUMBER: 2003-018667 [01] WPIX  
 DOC. NO. CPI: C2003-004453 [01]  
 DOC. NO. NON-CPI: N2003-014466 [01]  
 TITLE: Fabrication of integrated circuit involves applying silana-coupling agent comprising polymerizable group(s) on substrate, heating, rinsing the substrate in solvent and applying dielectric material  
 DERWENT CLASS: A26; A85; E11; L03; U11  
 INVENTOR: ECKERT A; ECKERT A R; ECKERT R; HAY C; HAY J; HAY J C; HEDRICK C; HEDRICK J; HEDRICK J C; LEE K; LEE K W; LINIGER E; LINIGER E G; LINIGER G; SIMONYI E; SIMONYI E E; CURTIS H J; ERIKA S E; GERHARD L E; KANG-WOOK L; ROBERT E A  
 PATENT ASSIGNEE: (IBM-C) IBM CORP; (IBM-C) INT BUSINESS MACHINES CORP  
 COUNTRY COUNT: 28

## PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC	
WO 2002069381	A2 20020906	(200301)*	EN	28[4]		<--
US 20020160600	A1 20021031	(200301)	EN			<--
US 6455443	B1 20020924	(200301)	EN			<--
KR 2003071841	A 20030906	(200405)	KO			<--
EP 1390972	A2 20040225	(200415)	EN			
TW 561551	A 20031111	(200428)	ZH			<--
JP 2004532514	W 20041021	(200469)	JA	46		

CN 1550036	A	20041124	(200516)	ZH	
JP 3759108	B2	20060322	(200621)	JA	11
IN 2003DN01322	P1	20050527	(200645)	EN	
EP 1390972	B1	20060712	(200652)	EN	
DE 60213086	E	20060824	(200657)	DE	
CN 1251312	C	20060412	(200667)	ZH	
ES 2262797	T3	20061201	(200680)	ES	
KR 516534	B	20050922	(200680)	KO	
DE 60213086	T2	20061228	(200702)	DE	
IL 157506	A	20070603	(200741)	EN	

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2002069381	A2	WO 2002-US4879	20020219
US 6455443	B1	US 2001-789422	20010221
US 20020160600	A1	US 2001-789422	20010221
CN 1550036	A	CN 2002-806345	20020219
CN 1251312	C	CN 2002-806345	20020219
DE 60213086	E	DE 2002-613086	20020219
DE 60213086	T2	DE 2002-613086	20020219
EP 1390972	A2	EP 2002-721047	20020219
EP 1390972	B1	EP 2002-721047	20020219
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ES 2262797	T3	EP 2002-721047	20020219
DE 60213086	T2	EP 2002-721047	20020219
JP 2004532514	W	JP 2002-568408	20020219
JP 3759108	B2	JP 2002-568408	20020219
EP 1390972	A2	WO 2002-US4879	20020219
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IN 2003DN01322	P1	WO 2002-US4879	20020219
EP 1390972	B1	WO 2002-US4879	20020219
DE 60213086	E	WO 2002-US4879	20020219
KR 516534	B	WO 2002-US4879	20020219
DE 60213086	T2	WO 2002-US4879	20020219
TW 561551	A	TW 2002-103031	20020221
KR 2003071841	A	KR 2003-709637	20030721
KR 516534	B	KR 2003-709637	20030721
IN 2003DN01322	P1	IN 2003-DN1322	20030819
IL 157506	A	IL 2002-157506	20020219

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 60213086	E	Based on EP 1390972
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DE 60213086	T2	Based on EP 1390972
JP 3759108	B2	Previous Publ JP 2004532514
KR 516534	B	Previous Publ KR 2003071841
EP 1390972	A2	Based on WO 2002069381
JP 2004532514	W	Based on WO 2002069381
JP 3759108	B2	Based on WO 2002069381
EP 1390972	B1	Based on WO 2002069381
DE 60213086	E	Based on WO 2002069381
KR 516534	B	Based on WO 2002069381
DE 60213086	T2	Based on WO 2002069381
IL 157506	A	Based on WO 2002069381

PRIORITY APPLN. INFO: US 2001-789422 20010221  
 INT. PATENT CLASSIF.:  
     MAIN: H01L021-31; H01L021-311; H01L021-312  
     IPC ORIGINAL: H01L0021-02 [I,C]; H01L0021-02 [I,C]; H01L0021-02 [I,C];  
                   H01L0021-312 [I,A]; H01L0021-312 [I,A]  
     IPC RECLASSIF.: H01L0021-02 [I,C]; H01L0021-312 [I,A]; H01L0021-70 [I,C];  
                   H01L0021-768 [I,A]  
 ECLA: H01L0021-312; H01L0021-312B; H01L0021-312B2;  
          H01L0021-312B2B; H01L0021-768B  
 USCLASS NCLM: 438/623.000; 438/781.000  
           NCLS: 257/E21.259; 257/E21.260; 257/E21.261; 257/E21.262;  
                  257/E21.576; 438/623.000; 438/778.000; 438/780.000;  
                  438/781.000  
 JAP. PATENT CLASSIF.:  
     MAIN/SEC.: H01L0021-312 A  
 FTERM CLASSIF.: 5F058; 5F058/AA08; 5F058/AC02; 5F058/AC03; 5F058/AC10;  
                  5F058/AE01; 5F058/AF01; 5F058/AF02; 5F058/AF04;  
                  5F058/AG01; 5F058/AH02

## BASIC ABSTRACT:

WO 2002069381 A2 UPAB: 20080523

NOVELTY - Providing a method of fabricating an IC which includes at least a low-dielectric constant, K, interlevel dielectric film having improved adhesion, low defect density and enhanced electrical properties associated with it.

DETAILED DESCRIPTION - A silane-coupling agent containing polymerizable group(s) is applied on substrate (10) to form uniform coating (12) of silane-coupling agent. The substrate is heated at 90 degrees C or more to form a surface layer containing silicon-oxygen bonds. The heated substrate is rinsed in a solvent to remove any residual unreacted silane-coupling agent, and a dielectric material is applied to fabricate integrated circuit.

USE - To fabricate integrated circuit with low dielectric constant film which can be used in back end of line processing.

ADVANTAGE - The fabricated integrated circuit includes low-dielectric constant, interlevel dielectric film having improved adhesion, low defect density and enhanced electrical properties.

DESCRIPTION OF DRAWINGS - The figure shows the process for fabricating the integrated circuit.

Substrate (10)

Coating (12)

MANUAL CODE: CPI: A06-A00E2; A11-B05C; A12-E07C; E05-E01; E05-E02B;  
                  E05-E02C; E05-E02D; L04-C01B; L04-C12  
                  EPI: U11-A08A1; U11-C05A; U11-C05D1

## TECH

INORGANIC CHEMISTRY - Preferred Material: The substrate is silicon-containing substrate, conductive metal, metal barrier dielectric or interlevel dielectric layer of an integrated circuit having metallic lines and vias.

POLYMERS - Preferred Dielectric Material: The dielectric material is polyimide, silicon-containing polymer, benzocyclobutene, polynorborane, polyarylene ether, thermosetting polyarylene ethers, aromatic thermosetting resins, perylene copolymer, parylene-F, polynaphthalene, polytetrafluoronaphthalene, poly(octafluoro-bis-benzocyclobutene), Teflon-AF, fluorinated-amorphous carbon, Xerogels, nanoporous silica, methylsilsesquioxane, hydridosilsesquioxane or SiLK (TM).

ORGANIC CHEMISTRY - Preferred Coupling Agent: The silane-coupling agent is an alkoxy silane represented by formula (I);  
 X = polymerizable group selected from alkenes, vinyl and alkynes;

R1,R2 = H, alkyl, alkoxy, alkylester, alkenyl, alkynyl, aryl or cycloalkyl;  
 R3 = alkyl or -C(O)R4 radical;  
 R4 = alkyl;  
 a,b = 0-2; and  
 y = 1-3

with the proviso that the sum of a, b and y is 3.

Preferred Process: The silane-coupling agent is applied to the substrate by spin-on deposition, spray coating, dip coating, brushing, evaporation or dissolution.

The silane coupling agent is applied as a concentrated solution having the agent in a concentration of 0.10 % or more, preferably about 2.5 %.

The substrate is heated at 90-120 degrees C for 10-300 seconds in an inert gas atmosphere, and rinsed in a solvent.

The substrate is optionally baked before or after rinsing. The dielectric material having a dielectric constant of 3.8 or less, is applied by spin-on coating, chemical solution deposition, chemical vapor deposition (CVD), plasma-assisted CVD, evaporation or dip coating.

The processing steps are repeated any number of times to provide a multi-level interconnect structure.

ABEX SPECIFIC COMPOUNDS - The alkoxysilane is vinyltriacetoxysilane, vinyltrimethoxysilane, vinyltriethoxysilane, allyltrimethoxysilane, vinylidiphenylethoxysilane, norbornyltriethoxysilane or trivinyltriethoxysilane, preferably vinyltriacetoxysilane. The solvent is propylene glycol monoethyl ether acetate.

EXAMPLE - An adhesion promoter solution comprising 2.5 % solution of vinyltriacetoxysilane in propylene glycol monomethyl ether acetate (PGMEA) was spun on silicon substrate to form a film having thickness of 123 Angstrom . The substrate was baked at 100 degrees C for 60 seconds and rinsed in PGMEA to remove the impurities. The thickness of the film was reduced to 5.1 Angstrom and the contact angle of water on wafer surface was 65degrees. Further SiLK (TM) (dielectric) was spin coated on silicon substrate. The amount of foreign material defects in SiLK (TM) was less than 10. The substrate was cured at 385 degrees C. The fracture toughness after single cure process and six additional cure processes was 0.48 MPam-1/2 and 0.39 MPam-1/2, respectively and the peeling strength of the film after single cure process and after six additional cure processes was 18 g/mm, and 13 g/mm respectively.

L56 ANSWER 9 OF 18 WPIX COPYRIGHT 2009 THOMSON REUTERS on STN

ACCESSION NUMBER: 2003-001714 [01] WPIX

DOC. NO. CPI: C2003-000706 [01]

DOC. NO. NON-CPI: N2003-001203 [01]

TITLE: Method of forming dual damascene structure for wiring on semiconductors, involves superposing organic dielectric film and metal oxide film on inorganic dielectric film

DERWENT CLASS: A85; L03; U11

INVENTOR: SHIODA A; SHIOTA A

PATENT ASSIGNEE: (JAPS-C) JSR CORP

COUNTRY COUNT: 30

#### PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC	
EP 1246239	A1	20021002	(200301)*	EN	15[2]		<--
JP 2002299441	A	20021011	(200301)	JA	13		<--
US 20020142586	A1	20021003	(200301)	EN			<--
KR 2002077174	A	20021011	(200314)	KO			<--

TW 586204	A	20040501 (200475)	ZH
EP 1246239	B1	20080723 (200851)	EN
DE 60227736	E	20080904 (200858)	DE
KR 822138	B1	20080415 (200924)	KO

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 1246239 A1		EP 2002-7149	20020328
JP 2002299441 A		JP 2001-101186	20010330
US 20020142586 A1		US 2002-94647	20020312
TW 586204 A		TW 2002-106026	20020327
DE 60227736 E		DE 2002-60227736	20020328
DE 60227736 E		EP 2002-7149	20020328
KR 2002077174 A		KR 2002-16962	20020328
KR 822138 B1		KR 2002-16962	20020328

## FILING DETAILS:

PATENT NO	KIND	PATENT NO	
DE 60227736	E	EP 1246239	A
KR 822138	B1	KR 2002077174	A

PRIORITY APPLN. INFO: JP 2001-101186

20010330

## INT. PATENT CLASSIF.:

MAIN: H01L021-28; H01L023-50  
 SECONDARY: H01L021-768  
 IPC ORIGINAL: H01L0021-02 [I,C]; H01L0021-28 [I,A]; H01L0021-28 [I,A];  
 H01L0021-70 [I,C]; H01L0021-70 [I,C]; H01L0021-768 [I,A];  
 H01L0021-768 [I,A]  
 IPC RECLASSIF.: H01L0021-02 [I,C]; H01L0021-312 [I,A]; H01L0021-316 [I,A]  
 ; H01L0021-70 [I,C]; H01L0021-768 [I,A]; H01L0023-52  
 [I,C]; H01L0023-522 [I,A]

ECLA: H01L0021-312B; H01L0021-312F; H01L0021-316;  
H01L0021-768B2D

USCLASS NCLM: 438/633.000

NCLS: 257/E21.260; 257/E21.264; 257/E21.271; 257/E21.579

## JAP. PATENT CLASSIF.:

MAIN/SEC.: H01L0021-312 N; H01L0021-316 M; H01L0021-90 J

## FTERM CLASSIF.:

5F033; 5F058; 5F058/AD02; 5F058/AD04; 5F058/AD09;  
 5F058/AD10; 5F058/AD12; 5F058/AF04; 5F058/AG01;  
 5F058/AH02; 5F058/BC02; 5F058/BD02; 5F058/BD04;  
 5F058/BD05; 5F058/BD18; 5F058/BD19; 5F058/BE01;  
 5F058/BF46; 5F058/BH01; 5F058/BJ02; 5F033/HH11;  
 5F033/JJ11; 5F033/JJ21; 5F033/KK11; 5F033/KK21;  
 5F033/MM02; 5F033/MM12; 5F033/MM13; 5F033/NN06;  
 5F033/NN07; 5F033/PP14; 5F033/PP27; 5F033/QQ04;  
 5F033/QQ09; 5F033/QQ11; 5F033/QQ25; 5F033/QQ28;  
 5F033/QQ37; 5F033/QQ48; 5F033/RR01; 5F033/RR03;  
 5F033/RR06; 5F033/RR09; 5F033/RR21; 5F033/RR22;  
 5F033/RR25; 5F033/SS15; 5F033/SS22; 5F033/TT04

## BASIC ABSTRACT:

EP 1246239 A1 UPAB: 20060118

NOVELTY - An organic dielectric film and a metal oxide film are superposed on an inorganic dielectric film to form a dual damascene structure.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for dual damascene structure.

USE - For forming dual damascene structure (claimed) for wiring on semiconductors.

ADVANTAGE - The dual damascene structure is formed by a simple method, as the insulating layers and hard mask are formed from coating materials. The problem concerning etching selective ratio associated with the use of a combination of chemical vapor deposition films selected from silicon carbide, silicon nitride and silica films is eliminated.

DESCRIPTION OF DRAWINGS - The figure shows the multi-layer structure having inorganic dielectric film, organic dielectric film and metal oxide film.

MANUAL CODE: CPI: A06-A00E2; A11-B05D; A12-E07C; L04-C10A; L04-C12  
EPI: U11-C05A; U11-C05D1

#### TECH

ELECTRONICS - Preferred Process: A coating fluid comprising polysiloxane and organic solvent, and coating fluid comprising organic polymer are applied to form inorganic and organic dielectric film, respectively. Further a coating fluid comprising an organic solvent obtained by hydrolyzing and condensing an alkoxide is applied and heated to form metal oxide film and dual damascene structure is formed. The inorganic dielectric film has a mid etch stopper layer.

INORGANIC CHEMISTRY - Preferred Alkoxide: The alkoxide is oxide of boron, aluminum, gallium, indium, thallium, silicon, germanium, tin, lead, titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum, tungsten, manganese, zinc, cadmium, phosphorus, arsenic, antimony, bismuth and/or cerium.

Preferred Film: The inorganic dielectric film is the siloxane-based dielectric film having a dielectric constant of 1.5-3.2 and having hydrocarbon groups.

POLYMERS - Preferred Polymer: The organic polymer is polyarylenes, poly(arylene ether)s, polybenzoxazole or polyimides. Preferred Properties: The organic polymer has glass transition point of 400degreesC or higher and a heat decomposition temperature of 500degreesC or higher. The metal oxide film has reflection-prevention function.

ABEX EXAMPLE - Coating fluid prepared from ammonia water, ultra-pure water, ethanol, methyltrimethoxysilane and tetraethoxy silane was coated on a substrate. The substrate was heated in air at 80degreesC for 5 minutes, and subsequently in nitrogen at 200degreesC for 5 minutes. The substrate was heated under vacuum at 425degreesC for 1 hour to form inorganic dielectric film having the thickness of 300 nm. The substrate was further heated in 450degreesC nitrogen atmosphere for 5 minutes to form mid etch stopper layer having the thickness of 50 nm. A coating liquid prepared from 9,9-bis(4-hydroxy-3-methylphenyl) fluorene, potassium carbonate, dimethyl acetamide and bis(4-fluorophenyl ketone) was coated on the dielectric film. The substrate was dried at 80degreesC for 1 minute and at 200degreesC for 2 minutes to form organic dielectric film. Similarly a coating fluid prepared from propylene glycol monopropyl ether, tetramethoxy silane, ion exchange water containing maleic acid and bis(4-t-butyl-phenyl)iodonium was applied and then dried with 200degreesC hot plate to form a hard mass layer, and a dual damascene structure was produced.

L56 ANSWER 10 OF 18 WPIX COPYRIGHT 2009 THOMSON REUTERS on STN  
ACCESSION NUMBER: 2002-637586 [69] WPIX

DOC. NO. CPI: C2006-242402 [80]

TITLE: Producing platelets, for use e.g., as pigments, involves coating substrate with successive layers, separating multilayer stack from substrate, separating layers and milling to form platelets

DERWENT CLASS: A14; A28; A85; A96; A97; B07; C07; G01; H07; L03; P41;

INVENTOR: P42  
 GURTNER A; KREUZER F; KREUZER F H; LEIGEBER H; STANJEK V  
 PATENT ASSIGNEE: (CONE-C) CONSORTIUM ELEKTROCHEM IND GMBH  
 COUNTRY COUNT: 29

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC	
DE 10125358	A1	20020529	(200269)*	DE	18[11]		<--
EP 1213338	A1	20020612	(200269)	DE			<--
JP 2002204977	A	20020723	(200269)	JA	11		<--
US 20020086113	A1	20020704	(200269)	EN			<--
KR 2002038491	A	20020523	(200274)	KO			<--
EP 1213338	B1	20030723	(200356)	DE			<--
DE 50100408	G	20030828	(200357)	DE			<--
US 6732961	B2	20040511	(200431)	EN			
KR 420622	B	20040302	(200443)	KO			
JP 3689362	B2	20050831	(200558)	JA	16		

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 10125358 A1		DE 2001-10125358	20010523
DE 50100408 G		DE 2001-50100408	20011108
EP 1213338 A1		EP 2001-126428	20011108
EP 1213338 B1		EP 2001-126428	20011108
DE 50100408 G		EP 2001-126428	20011108
KR 2002038491 A		KR 2001-70360	20011113
KR 420622 B		KR 2001-70360	20011113
JP 2002204977 A		JP 2001-349119	20011114
JP 3689362 B2		JP 2001-349119	20011114
US 20020086113 A1		US 2001-2923	20011115
US 6732961 B2		US 2001-2923	20011115

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 50100408 G	Based on	EP 1213338 A
JP 3689362 B2	Previous Publ	JP 2002204977 A
KR 420622 B	Previous Publ	KR 2002038491 A

PRIORITY APPLN. INFO: DE 2000-10056844 20001116  
 DE 2001-10125358 20010523

## INT. PATENT CLASSIF.:

MAIN: C09C003-04; C09K019-38  
 SECONDARY: C09B067-00; C09D005-36; C09K019-58  
 IPC RECLASSIF.: B02C0021-00 [I,A]; B02C0021-00 [I,C]; B05D0001-38 [I,A];  
 B05D0001-38 [I,C]; B05D0007-24 [I,A]; B05D0007-24 [I,C];  
 C09B0067-00 [I,A]; C09B0067-00 [I,C]; C09B0067-20 [I,A];  
 C09C0003-04 [I,A]; C09C0003-04 [I,C]; C09K0019-38 [I,A];  
 C09K0019-38 [I,C]; C09K0019-58 [I,A]; C09K0019-58 [I,C];  
 ECLA: C09B0067-00N2; C09B0067-00V; C09K0019-38; C09K0019-38B4B;  
 C09K0019-38B4B6; C09K0019-58B  
 USCLASS NCLM: 241/003.000  
 NCLS: 241/005.000; 241/024.280; 241/026.000; 241/030.000;  
 427/402.000  
 JAP. PATENT CLASSIF.:

MAIN/SEC.: B02C0021-00 Z; B05D0001-38; B05D0007-24 301 Z;  
 C09B0067-20 A; C09C0003-04  
 FTERM CLASSIF.: 4D067; 4D075; 4H056; 4J037; 4D075/AE16; 4D075/CA47;  
 4J037/CC23; 4J037/CC24; 4J037/CC25; 4J037/CC26;  
 4J037/CC28; 4D075/DA03; 4D075/DA15; 4D075/DA19;  
 4D075/DA20; 4D067/DD02; 4J037/DD05; 4J037/DD10;  
 4D075/EA60; 4J037/EE04; 4J037/EE23; 4J037/EE29;  
 4J037/FF02; 4D067/GA20; 4D067/GB05

## BASIC ABSTRACT:

DE 10125358 A1 UPAB: 20060120

NOVELTY - A method for producing platelets involves applying fluid or gaseous starting material to a substrate, solidifying, removing from the substrate and milling. The material is applied in layers each with a thickness of 0.2-1000 microns, and the isolated stack is treated so that the material splits into separate layers which are then milled to a particle size of 0.5-10000 microns.

USE - Platelets obtained by this method are used as pigments, special effect pigments, substrates for interference layers, rheological additives, lubricants, heat shields, polarizers, electrically switchable displays, fire retardants, electroviscous liquids and carriers for active substances, e.g. pharmaceuticals, herbicides or pesticides.

ADVANTAGE - Enables the production of platelets with a thickness of 0.1-1000 microns and a diameter of 0.5-10000 microns from materials with a high elongation at break and a low tensile strength, without the disadvantages of prior-art methods (e.g. the difficulty of removing certain types of deposited film from the substrate without great expense and/or damage to the material, especially in the case of non-brittle materials).

MANUAL CODE: CPI: A11-A04; B04-C03; B05-B01B; B11-C09; C04-C03;  
 C05-B01B; C11-C09; G01-B01; H07-A; L03-J

## TECH

POLYMERS - Preferred Method: The stack of layers is formed by applying and solidifying the starting material at least twice. This material may be applied to a substrate film in the form of layers of film without a release agent or release layer, or to a rotating cylindrical substrate so as to form a roll-shaped or annular stack. This may be achieved by first applying the material to a rotating belt and then transferring it to the cylinder, or by applying the material to the inside of a rotating cylinder. The stack may also be produced continuously in the form of a helix from an applicator following a circular path, or in the form of a folded leaf structure by using an applicator moving to and fro in one plane. The stack of layers may be produced with a release agent (except as above) and optionally with the aid of smoothing elements, and/or in the presence of liquid crystal-orienting substances or electrical or magnetic fields. Layers may be continuously stripped off from the side opposite the applicator, and the individual layers are then pulverized in a pan grinder, a ball mill, a pinned disc mill or an air jet mill, after which the material is classified. Materials with different properties may be applied in immediate succession, with the proviso that these strongly bound double or multiple layers represent the individual layers of the resulting stack which will, when milled, give the required platelets with the required layer sequence. Preferred Materials: Polymerizable, crosslinkable, liquid crystalline (preferably cholesteric) materials. These materials may contain compounds selected from polyesters, epoxides, vinyl esters and ethers, polyurethanes, silanes, siloxanes, silanulates, waterglass, silicate esters, liquid crystalline, polymerizable or crosslinkable aromatic, cycloaliphatic or heterocyclic compounds, film-forming dispersions, resin solutions, suspensions, coating powders, substances which can be applied by sputtering or vapor deposition, substances capable of polymerisation,

polyaddition, hydrosilylation, polycondensation or crosslinking, fusible resins, thermoplastics, solutions or suspensions which can be converted into film by evaporation of solvent and mixtures which can be polymerized to give 2-phase systems.

ABEX EXAMPLE - Two mixtures of crosslinkable liquid crystalline (LC) substances with a chiral phase were produced as described in DE 19917067, Example 9. The color of one of these (mixture 1) was adjusted with a suitable concentration of chiral dopant so that a single-layer LC film showed a red color when viewed at right angles, while the color of the other (mixture 2) was adjusted to green. Mixture 1 was spread onto 50-micron polyester film (Hostaphan RN 50 (RTM)) at 100degreesC to form a film layer with a thickness of 6 microns, then a cover film was laminated on with a 2-micron crosslinked silicone layer (composition given) next to the LC layer, which became oriented to a highly-reflecting cholesteric structure; the LC layer was then UV-cured with a UV-A dose of 300-600 mJ/cm2. This entire process was carried out at 100degreesC. After stripping off the cover film, mixture 2 was applied and processed as above (6 microns), to give a 2-layer system with a total thickness of 12 microns and a golden color (red plus green). After stripping off the cover film, the LC layer and the base film were broken up by bending over an edge with a radius of 0.4 mm, and the coarse pieces of LC film (thickness = 12 microns) were easily separated from the base film by suction. These pieces were then milled in an ultra-centrifugal mill (Retsch Type ZM 100 (RTM)) with in-built sieve; mesh size below 80 microns). Microscopic examination of the resulting pigments showed that the LC double layers had been completely separated in the milling process so that the pigments showed either a red or green color depending on the layer of origin. There were no double-layer (golden) pigment particles even in large samples with very many more than 10000 separate platelets.

L56 ANSWER 11 OF 18 WPIX COPYRIGHT 2009 THOMSON REUTERS on STN  
 ACCESSION NUMBER: 2002-443845 [47] WPIX  
 DOC. NO. CPI: C2002-126252 [47]  
 DOC. NO. NON-CPI: N2002-349734 [47]  
 TITLE: Polymer-based mirror used as rear view mirror  
 for automobiles, has synthetic resin  
 substrate having abrasion resistant  
 coating and reflective coating, protective layer  
 on front and rear surfaces, respectively  
 DERWENT CLASS: A14; A89; G02; L01; L02; P27; P73; P81; Q17  
 INVENTOR: RICHARD D A  
 PATENT ASSIGNEE: (RICH-I) RICHARD D A; (VTEC-N) VTEC TECHNOLOGIES INC;  
 (VTEC-N) VTEC TECHNOLOGIES LLC; (VTEC-N) VTEC TECHNOLOGY  
 CO  
 COUNTRY COUNT: 93

## PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC
WO 2002016972	A2 20020228	(200247)*	EN	41[8]	<--
AU 2001086696	A 20020304	(200247)	EN		<--
US 20020044367	A1 20020418	(200247)	EN		<--
US 6409354	B1 20020625	(200249)	EN		<--
US 20030016458	A1 20030123	(200310)	EN		<--
EP 1320772	A2 20030625	(200341)	EN		<--
US 6601960	B2 20030805	(200353)	EN		<--
EP 1376159	A1 20040102	(200409)#	EN		
JP 2004029816	A 20040129	(200410)#	JA	22	
US 20040027704	A1 20040212	(200412)	EN		

## 10/588459

CN 1477146	A	20040225	(200436) #	ZH	
EP 1505413	A1	20050209	(200512) #	EN	
JP 2005055860	A	20050303	(200517) #	JA	28
CN 1580822	A	20050216	(200535) #	ZH	
BR 2004004012	A	20050607	(200538) #	PT	
CN 1592858	A	20050309	(200542)	ZH	
US 7018057	B2	20060328	(200623)	EN	
US 20060087755	A1	20060427	(200629)	EN	

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2002016972 A2		WO 2001-US26408	20010823
US 20020044367 A1 Provisional		US 2000-227194F	20000823
US 6409354 B1 Provisional		US 2000-227194F	20000823
US 20030016458 A1 Provisional		US 2000-227194F	20000823
US 6601960 B2 Provisional		US 2000-227194F	20000823
US 20040027704 A1 Provisional		US 2000-227194F	20000823
US 7018057 B2 Provisional		US 2000-227194F	20000823
US 20060087755 A1 Provisional		US 2000-227194F	20000823
US 20020044367 A1		US 2001-916777	20010727
US 6409354 B1		US 2001-916777	20010727
US 20030016458 A1 CIP of		US 2001-916777	20010727
US 6601960 B2 CIP of		US 2001-916777	20010727
US 20040027704 A1 CIP of		US 2001-916777	20010727
US 7018057 B2 CIP of		US 2001-916777	20010727
US 20060087755 A1 CIP of		US 2001-916777	20010727
AU 2001086696 A		AU 2001-86696	20010823
CN 1592858 A		CN 2001-816954	20010823
EP 1320772 A2		EP 2001-966159	20010823
EP 1320772 A2		WO 2001-US26408	20010823
US 20030016458 A1		US 2002-177614	20020624
US 6601960 B2		US 2002-177614	20020624
US 20040027704 A1 CIP of		US 2002-177614	20020624
US 7018057 B2 CIP of		US 2002-177614	20020624
US 20060087755 A1 CIP of		US 2002-177614	20020624
EP 1376159 A1		EP 2003-394057	20030623
JP 2004029816 A		JP 2003-178016	20030623
CN 1477146 A		CN 2003-148735	20030624
US 20040027704 A1		US 2003-633972	20030804
US 7018057 B2		US 2003-633972	20030804
US 20060087755 A1 Div Ex		US 2003-633972	20030804
JP 2005055860 A		JP 2003-420787	20031218
EP 1505413 A1		EP 2004-394041	20040705
BR 2004004012 A		BR 2004-4012	20040803
US 20060087755 A1		US 2005-297493	20051208
CN 1580822 A		CN 2004-10056006	20040804

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
US 20030016458 A1	CIP of	US 6409354 B
US 6601960 B2	CIP of	US 6409354 B
US 20040027704 A1	CIP of	US 6409354 B
US 7018057 B2	CIP of	US 6409354 B
US 20040027704 A1	CIP of	US 6601960 B
US 7018057 B2	CIP of	US 6601960 B
AU 2001086696 A	Based on	WO 2002016972 A

EP 1320772	A2	Based on	WO 2002016972	A
US 20060087755	A1	CIP of	US 6409354	B
US 20060087755	A1	CIP of	US 6601960	B

PRIORITY APPLN. INFO: US 2001-916777 20010727

US 2000-227194P	20000823
US 2002-177614	20020624
JF 2003-178016	20030623
EF 2003-394057	20030623
CN 2003-148735	20030624
US 2003-633972	20030804
JF 2003-420787	20031218
EP 2004-394041	20040705
BR 2004-4012	20040803
US 2005-297493	20051208
CN 2004-10056006	20040804

## INT. PATENT CLASSIF.:

IPC ORIGINAL: G02B0005-08 [I,A]; G02B0005-08 [I,C]; G02B0007-182 [I,A]; G02B0007-182 [I,C]

IPC RECLASSIF.: B32B0027-08 [I,A]; B32B0027-08 [I,C]; B32B0007-02 [I,A]; B32B0007-02 [I,C]; B32B0009-00 [I,A]; B32B0009-00 [I,C]; B60R0001-02 [I,C]; B60R0001-04 [I,A]; B60R0001-06 [I,A]; B60R0001-06 [I,C]; G02B0001-10 [I,A]; G02B0001-10 [I,A]; G02B0001-10 [I,C]; G02B0001-10 [I,C]; G02B0005-08 [I,A]; G02B0005-08 [I,C]

ECLA: B32B0027-08; G02B0005-08M1P; G02B0005-08M2S1;

USCLASS NCLM: G02B0005-08R

NCLS: 359/883.000  
359/585.000; 359/586.000; 359/587.000; 359/870.000;  
359/884.000

## JAP. PATENT CLASSIF.:

MAIN/SEC.: B32B0007-02 103; B32B0009-00 A; B60R0001-04 Z; B60R0001-06 D; G02B0001-10 Z; G02B0005-08 A; G02B0005-08 C

## FTERM CLASSIF.:

2H042; 2K009; 3D021; 3D053; 4F100; 2K009/AA15;  
4F100/AA17.E; 4F100/AA20.B; 4F100/AA20.C; 4F100/AA20.E;  
4F100/AA27.B; 4F100/AB10.C; 4F100/AB19.B; 4F100/AB31.B;  
4F100/AH06.B; 4F100/AK01.A; 4F100/AK25.A; 4F100/AK45.A;  
4F100/AK52.E; 4F100/AL05.B; 4F100/AR00.B; 4F100/AR00.D;  
4F100/AR00.E; 4F100/AS00.D; 4F100/AT00.A; 4F100/BA03;  
4F100/BA04; 4F100/BA05; 4F100/BA07; 4F100/BA10.C;  
4F100/BA10.D; 4F100/BA10.E; 4F100/BA11; 4F100/BA44;  
2K009/BB11; 4F100/CB00; 2K009/CC03; 2K009/CC14;  
2H042/DA01; 2H042/DA08; 2H042/DA11; 2H042/DA14;  
2H042/DA17; 2H042/DA18; 2H042/DB11; 2H042/DC01;  
2H042/DC02; 2H042/DC04; 2H042/DC07; 2K009/DD02;  
2K009/DD03; 2H042/DD05; 4F100/DE01.B; 2H042/DE01;  
2K009/EE00; 4F100/EH66; 3D053/FF28; 3D053/FF29;  
4F100/GH07; 3D053/GG05; 3D053/GG06; 3D053/HH38;  
4F100/JA02; 4F100/JB05.E; 4F100/JB06.E; 4F100/JB07.B;  
4F100/JD09; 4F100/JK09.B; 4F100/JK12.B; 4F100/JL00.D;  
4F100/JL00; 4F100/JM02.B; 4F100/JM02.C; 4F100/JN01.A;  
4F100/JN06.C; 4F100/JN06; 4F100/YY00.B

## BASIC ABSTRACT:

WO 2002016972 A2 UPAB: 20060119

NOVELTY - A polymer-based mirror (10) comprise a transparent synthetic resin substrate (14) having front and rear surfaces (12,16). A multi-layer abrasion resistant coating (20) and multi-layer reflective coating (24), each having layer(s) including zirconia are respectively provided on front and rear

surfaces of substrate. A protective back-coat layer (26) is provided on outer surface of the reflective coating.

USE - For use as interior and exterior rear view mirror for automobiles.

ADVANTAGE - The polymer-based mirror is resistant to mechanical distortion resulting from climatic and hydrodynamic conditions. The mirror is easily and economically produced. The polymer based mirror is advantageous over glass due to its light weight and durability. The polymer-based mirror does not exhibit warping since it does not exhibit moisture absorption. The reflective layer provides good reflectivity and excellent resistance to erosion from the influence of moisture. The reflective layer is superior to the standard aluminum thin film reflective coating. The resin substrate can be shaped as required, without the need of any machining operations which leads to reduction of the total cost of the production compared with the production of conventional glass mirror of same shape.

DESCRIPTION OF DRAWINGS - The figure shows

Front surface (12)

Transparent synthetic resin substrate (14)

Rear surface (16)

Abrasion resistant coating (20)

Reflective coating (24)

Protective back-coat layer (26) MANUAL CODE:

CPI: A12-T04A;

L01-L02; L02-G08

TECH

INORGANIC CHEMISTRY - Preferred Layers: The abrasion resistant coating functions as a surface-hardening layer for the synthetic resin substrate and comprises sequential layers of SiO, SiO<sub>2</sub>, and Zv(iPv)<sub>2</sub>, each of thickness 500-1200degreesA, approximately 750degreesA, 300-1200degreesA, approximately 550degreesA and 600-1400degreesA, approximately 725degreesA respectively. The reflective coating comprises a multi-layered film of sequentially deposited layers of SiO, Al, SiO, Zv(iPv)<sub>2</sub> and SiO<sub>2</sub>. The SiO layer has thickness of 500-1200degreesA, approximately 750degreesA, Al layer has thickness of 700-1500degreesA, approximately 1200degreesA, Zv(iPv)<sub>2</sub> layer has thickness of 600-1400degreesA, approximately 720degreesA and SiO<sub>2</sub> layer has thickness of 300-1200degreesA, approximately 550degreesA. A posterior surface hardening layer which comprises a multi-layer coating having at least one layer which includes zirconia, is formed on the posterior surface of the substrate. The posterior surface hardening film comprises sequential layers of SiO<sub>2</sub> and Zv(iPv)<sub>2</sub>, each of thickness 300-1200degreesA, approximately 550degreesA and 600-1400degreesA, approximately 725degreesA. The back-coat layer is a resin based paint-like coating containing a powder inorganic filler material chosen from calcium carbonate, barium carbonate and aluminum silicate. A weather-resistant coating comprising hydrophilic and hydrophobic coatings, is provided on the abrasion resistant coating. The multi-layered hydrophilic coating comprise alternative layers of silica and zirconia and the hydrophobic coating comprises perfluoroalkylsilane coating of thickness 5-20 nm. The multi-layer hydrophobic coating sequentially comprises from its outer coating to inner surface: silica layer of thickness 907degreesA, zirconia layer of thickness 765degreesA, silica layer of thickness 174degreesA, zirconia layer of thickness 246degreesA and silica layer of thickness 2616degreesA. The weather resistant coating, abrasion resistant coating, reflective coating and protective back-coat layer are dry coatings which are vacuum coated on the substrate.

POLYMERS - Preferred Layers: A tie bond layer comprising organosilicon polymer material is formed on at least one of the

front and rear surfaces of the synthetic resin substrate. The organosilicon polymer material is triethoxymethyl silane

Preferred Substrate: A synthetic resin surface comprises one of polymethylmethacrylate, transparent crystalline polymer and cyclic olefin copolymer. The synthetic resin substrate has planar, wedge-shaped, bi-convex or toric configuration. The front and rear surfaces are parallel to each other and one surface is curved. The front surface of the resin substrate is spherical. Resin substrate is formed by injection molding and compression molding process. The resin substrate is tinted blue to provide transmittance of 50-90%. The front surface of the resin substrate is aspheric and is described by a relation (I) which relates spherical coefficient (c), conic coefficient (k), aspheric coefficient (an), depth (z) and distance (radius) from the center of the synthetic resin substrate (x). Preferred Properties: The reflective coating and protective coating are substantially impermeable to moisture. The abrasion resistant coating has hygroscopic characteristics to reduce fogging. The hydrophobic coating and multi-layered hydrophilic coating have substantially equal thermal coefficients of expansion. The tie-bond layer, reflective coating, back-coat layer, abrasion resistant coating and weather resistant coating possess respective moisture permeability characteristics which allow substantially equal amounts of moisture to permeate through to front and rear surfaces of synthetic resin substrate.

ABEX EXAMPLE - Six sample mirrors were subjected to reflectivity test. The surface hardening layer and organosilicon silane tie bond layer were not altered and composition of reflective layer was altered. The reflective coating comprised 1200degreesA of SiO, 1500degreesA of Al, 1200degreesA of SiO, 1400degreesA of Zv(iPv)2 and 1200degreesA of SiO2. Adequate amount of oxygen gas was introduced for reaction of coating media. The evaporation was performed at 5x10-5 TORR. The pressure was low enough to produce dense coatings. On completion of coating process, the mirrors were subjected to reflectivity testing and aesthetic observation. The mirrors showed reflectivity of 95.306% at wavelength of 750 nm, 95.054% at 700 nm, 95.259% at 650 nm, 94.998% at 600 nm, 95.434% at 550 nm, 95.139% at 500 nm, 95.139% at 450 nm, 94.653% at 400 nm and 12.153% at 380 nm. The reflected light was gold in color for all wavelengths.

L56 ANSWER 12 OF 18 WPIX COPYRIGHT 2009 THOMSON REUTERS on STN  
 ACCESSION NUMBER: 2002-319008 [36] WPIX  
 DOC. NO. CPI: C2002-092763 [36]  
 DOC. NO. NON-CPI: N2002-249576 [36]  
 TITLE: Porous silicon oxide coated film  
 production used as insulator layer, involves applying  
 solution containing silicon oxide  
 derivatives containing hydrolyzable silane  
 compound and/or organic polymer, on substrate  
 A85; L03; U11  
 DERWENT CLASS: ENOKI S; IOKA T; TAMURA N  
 INVENTOR: (ASAH-C) ASahi KASEI KOGYO KK  
 PATENT ASSIGNEE: 1  
 COUNTRY COUNT:

# PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC
JP 2001287910	A	20011016 (200236)*	JA	11[0]	

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# APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 2001287910 A		JP 2000-102445	20000404

PRIORITY APPLN. INFO: JP 2000-102445

20000404

INT. PATENT CLASSIF.:

IPC RECLASSIF.:

C01B0033-00 [I,C]; C01B0033-12 [I,A]; C09D0001-00 [I,A];  
 C09D0001-00 [I,C]; C09D0183-04 [I,A]; C09D0183-04 [I,C];  
 C09D0201-02 [I,C]; C09D0201-06 [I,A]; C09D0005-25 [I,A];  
 C09D0005-25 [I,C]; H01L0021-02 [I,C]; H01L0021-312 [I,A];  
 H01L0021-70 [I,C]; H01L0021-768 [I,A]; H01L0023-52 [I,C];  
 H01L0023-522 [I,A]

JAP. PATENT CLASSIF.:

MAIN/SEC.:

C01B0033-12 C; C09D0001-00; C09D0183-04; C09D0201-06;  
 C09D0005-25; H01L0021-312 C; H01L0021-90 Q; H01L0021-90 S

FTERM CLASSIF.:

4G072; 4J038; 5F033; 5F058; 4J038/AA01.1; 5F058/AA10;  
 4G072/AA25; 5F058/AC03; 5F058/AD05; 5F058/AF04;  
 5F058/AG01; 5F058/AH02; 4G072/BB09; 4G072/BB15;  
 4J038/DD00.2; 4J038/DE00.2; 4J038/DF01.2; 4J038/DL03.1;  
 4J038/DN01.2; 4J038/FA04.2; 4J038/FA06.2; 4J038/FA08.2;  
 4J038/FA09.2; 4J038/FA10.2; 4J038/FA12.2; 4J038/FA22.2;  
 4G072/FF06; 4G072/FF07; 4G072/FF09; 4G072/GG01;  
 4G072/GG03; 4J038/HA44.1; 4G072/HH30; 4G072/JJ47;  
 4J038/MA14; 4J038/NA11; 4J038/NA17; 4J038/NA21;  
 4J038/PA19; 4J038/PB09; 4J038/PC02; 4J038/PC03;  
 5F033/QQ74; 4G072/RR05; 5F033/RR23; 5F033/RR29;  
 5F033/SS22; 4G072/TT17; 4G072/UU01; 5F033/WW00;  
 5F033/WW03; 5F033/WW09; 5F033/XX24; 5F033/XX27

BASIC ABSTRACT:

JP 2001287910 A UPAB: 20050706

NOVELTY - The coating solution containing silicon oxide derivatives containing hydrolyzable silane compound and/or organic polymer, is coated on a substrate and a coated film having oxygen concentration of 5% or less is formed. Formation of silicon oxide /organic polymer composite thin film and removal of organic polymer from the composite film, at temperatures (T1, T2) satisfy specific relations.

DETAILED DESCRIPTION - The composite film formation temperature T1 is given as: 60degreesC less than T1 less than Ta, where Ta is the temperature in which the amount of organic polymer becomes 1 weight% during temperature rise process. The removal of organic polymer from the composite film at temperature T2 is given as: Taat mostT2at most450degreesC.

INDEPENDENT CLAIMS are also included for the following:

(a) Multilayer interconnection structure;

(b) Semiconductor element including multilayer interconnection structure

USE - For manufacture of porous silicon oxide coating film used as insulator layer for multilayer interconnection structure of semiconductor element.

ADVANTAGE - The coated film has strength, low dielectric constant and excellent resistance to sanding. The coated film is used as insulator layer for multilayer interconnect structure of semiconductor element. The coated film manufacturing method is easily implemented in the semiconductor element manufacturing process.

MANUAL CODE: CPI: A12-E07C; L04-C12A; L04-C13  
 EPI: U11-C05D1; U11-C05D2

L56 ANSWER 13 OF 18

WPX COPYRIGHT 2009

THOMSON REUTERS on STN

ACCESSION NUMBER:

2000-163368 [15] WPX

DOC. NO. CPI:

C2000-051159 [15]

TITLE:

Retroreflective coating composition, converted from

liquid to thermoplastic solid with retroreflective properties, on heating  
 DERWENT CLASS: A14; A82; A89; E19; G02  
 INVENTOR: ELLIS M  
 PATENT ASSIGNEE: (ELLI-I) ELLIS M; (KNIK-N) KNI LTD  
 COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC
GB 2339785	A	20000209 (200015)*	EN	42[0]	<--

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
GB 2339785 A		GB 1998-13786	19980626

PRIORITY APPLN. INFO: GB 1998-13786 19980626  
 INT. PATENT CLASSIF.:  
 IPC RECLASSIF.: C09D0127-02 [I,C]; C09D0127-06 [I,A]  
 ECLA: C09D0005-00C; C09D0127-06  
 BASIC ABSTRACT:

GB 2339785 A UPAB: 20050410

NOVELTY - A retroreflective coating composition comprises, i.e. polyvinyl chloride (PVC) resins, plasticizers, refractive and reflective constituents, and when applied to a substrate and subjected to heat, is converted from a liquid dispersion to a thermoplastic solid offering retroreflective properties.

DETAILED DESCRIPTION - A retroreflective coating composition comprises a dispersion of PVC resins, plasticizers, stabilizers, fillers and additives, color pigments, adhesion promoting agents, and refractive and retroreflective constituents. When applied to a substrate and subjected to heat, it is converted from a liquid dispersion to a thermoplastic solid offering retroreflective properties.

USE - As a means of increasing night time visibility of pedestrians and road users and as a means of enabling static objects, such as traffic control and hazard warning devices, to be clearly visible to oncoming vehicle drivers during the hours of darkness.

ADVANTAGE - The retroreflective coatings of the invention do not detract from the normal daytime appearance of objects and can be applied by conventional methods without the need for special equipment or facilities. The coatings can be applied to numerous materials and substrates and incorporated into the manufacture of vinyl based products. The formulations have a long term usage life when stored and will remain in liquid form when in printing screens and coating equipment. Retroreflective materials and articles can be produced either individually or continuously without the need for equipment cleaning during stoppages of any length of time. MANUAL CODE: CPI: A04-E02E1; A08-M09C; A09-A02; A12-C02; A12-L03;

E05-B01; E05-E; E05-G08; E05-G09; E05-L03C; E05-M;  
 E10-E04M; E10-F02; E10-G02F1; E10-G02G2; E10-G02H2;  
 E10-J02B4; E10-J02D; E31-K07; E31-P01; E34-B03; E34-D;  
 E35; E35-C; E35-K02; G02-A05

## TECH

POLYMERS - Preferred Composition: The dispersion includes:

(a) transparent spheres with a refractive index of 1.3-2.5 and a size of 5-250 microns in diameter that are colored or partially or totally covered with either: (a) aluminum, silver, alloys, oxides or other metallic or chemical coatings to provide a reflective surface applied to the spheres

by vapor or chemical deposition procedures; (b) alternating layers of high and low refractive index materials, i.e. layers of zinc sulfide and magnesium fluoride, applied by vapor or chemical deposition procedures; (c) a transparent coating containing reflective or refractive particles, i.e. metallic flake, metal oxides, nacreous pigments, and titanium dioxide; or (d) one or more colored layers. Alternatively, the dispersion includes transparent spheres, that may be partially or totally coated, and one or more of: Metallic flake, metal oxides, nacreous pigments, titanium dioxide or other refractive or reflective materials. These spheres are additionally coated with (organo)silanes or blends of silanes and organosilanes. The content of spheres in a dispersion is 5-300 parts per 100 parts vinyl resin (phr);

(b) organic or inorganic color pigments milled to a very fine particle size (the term pigments also refers to dyes and other particles that result in the appearance of color). The pigments are soluble in PVC polymer, enter into the polymer matrix during the fusion process, and may be pearlescent, fluorescent, phosphorescent or metallic, or a blend of these;

(c) volatile dispersants or thinners that are removed during the heating process. The vinyl dispersion resins are PVC homopolymers and copolymers or their blends, and may be monomodal, bimodal, or multimodal in a size range of 0.2-60 microns. The vinyl dispersions include: (i) functionally active resins, such as those with properties attributable to carboxyl groups on the vinyl chain; and (ii) vinyl copolymer resins which may have carboxyl, hydroxyl or other functionalities, that when crosslinked with epoxy, melamine, or other adhesion promoters, provide increased adhesion to a substrate;

(d) plasticizers such as: (i) esters of long chain alcohols with aromatics such as phthalic anhydride, and either straight-chain dibasic acids such as sebacic, azelaic, or adipic or phosphoric acids; (ii) polymeric plasticizers, such as polyesters of propylene glycol and sebacic acid; (iii) phthalate ester plasticizers, such as 2-ethylhexyl phthalate or shorter-chain-alcohol phthalate esters such as dihexyl and dibutyl phthalates; (iv) longer-chain alcohol phthalates; (v) phosphate ester plasticizers, such as tricresyl phosphate and octyl diphenyl phosphate; (vi) highly solvating plasticizers, such as butyl benzyl phthalate, dihexyl phthalate, diisohexyl phthalate, and esters of benzoic acid; (vii) epoxy, polymeric and citrate plasticizers; (viii) specialized monomeric esters such as trimellitates, including trioctyl trimellitate, triisooctyl trimellitate, triisononyl mellitate, and similar esters of linear alcohols; (ix) low volatility acrylate monomers such as triethylene glycol dimethacrylate; or (x) epoxidized soya and linseed oils providing heat and light stabilization properties as well as plasticization properties. The plasticizers are used with copolymer dispersion and extending resins to achieve usable physical properties at fusion temperatures below 138 degrees C (280 degrees F);

(e) phosphates to provide a level of flame resistance through increased char formation during combustion;

(f) primary stabilizers of leads, mixed metals, and organotin stabilizers, and secondary stabilizers of epoxidized oils and metallic soaps or stabilizers based on cadmium, zinc (preferably barium) salts of long-chain fatty acids such as stearic, oleic, benzoic or lauric acid, either individually or as blends;

(g) antioxidants and ultraviolet stabilizers to minimize degradation during long term exposure to ultraviolet light and weathering;

(h) aliphatic and aromatic diluents or blends of both;

(i) dispersants such as diisobutyl ketone, methyl isobutyl ketone, methyl ethyl ketone, isophorane, cyclohexanone, diacetone alcohol and butyl

carbital, either individually or as blends;

(j) viscosity modifiers that reduce the interparticle structure in the dispersion selected from: non-ionic or anionic ethoxylated alcohols, fatty acid esters, aliphatic compounds, and lecithin-based derivatives, that all act as viscosity depressants;

(k) thickening agents such as organometallic complexes, fumed and precipitated silicas, bentonite clay, special clays, and ultra fine calcium carbonates, that offer a high degree of thixotropy;

(l) liquid nitrile rubber to provide oil resistance and reduce plasticizer migration;

(m) silanes and organosilanes either individually or as blends;

(n) adhesion promoting agents selected from: Epoxy resins, modified phenolic and hydrocarbon resins, titanates, alkyl phosphate ester, zirconates and stabilized metal based adhesion promoters either individually or as blends; or isocyanurate trimer in dibutyl phthalate;

(o) small amounts of commercially available puff additives;

(p) ingredients to create decorative and special visual effects when incorporated into one or more of the coating layers, and include ingredients that are only visible when viewed in specific lighting conditions, such as infrared, ultraviolet, or the like.

Preferred Application of Dispersion: The dispersion is:

(i) applied to a substrate by flat-bed screen-printing;

(ii) applied to a moving (lengths of) substrate, such as fabrics, papers, metals, and plastics by knife-over-roll, floating-knife, and knife-over-blanket, systems, or by continuous flat-bed or rotary screen-printing;

(iii) applied to a substrate over the whole surface area, or in selected designs and patterns, in single or multiple colors;

(iv) applied to dark colored substrates which are pre-printed with a light colored underbase in sections, patterns, or as an all over print;

(v) applied to the substrate in multiple layers;

(vi) screen-printed onto a release or casting paper. The designs and images are printed in reverse order, starting with the eventual outer surface print. Each print is gelled before the application of the next. The printed release or casting material, is then applied to the substrate, with the print adjacent to the surface of the substrate, and is then subjected to heat and pressure to reactivate and fully fuse the vinyl dispersion to the substrate. The release paper is then peeled away to reveal the correctly facing printed image on the substrate;

(vii) applied to a release paper or casting material that has been embossed or patterned to create textured effects on the outer surface, and is applied in single or multiple layers, either as sections or as all over coverage;

(viii) applied in single or multiple layers of differing refractive indices, either as sections or as all over coverage;

(ix) applied as one or more coatings or layers;

(x) applied to moving lengths of substrate by rail coating. The retroreflective dispersion is picked up or supplied to a roller that travels in the same direction or opposite direction as the substrate. The dispersions may be fused by various devices, including ovens, beat platens, beat rolls, radiant resistance rods or quartz lamp heating;

(xi) applied in one or more finishing operations to a moving web, embossing is then carried out in-line, with an engraved steel roll applying pressure to the web as it passes over a rubber backup roll immediately at the oven exit. The fused reflective dispersion is chilled to set the emboss and allow it to release cleanly from the embossing roll; or

(xii) applied by a hot-melt coating process. On fusion, vinyl dispersions

pass from the fluidity of a two-phase dispersion, through a weak gel to a homogenous liquid hot melt. The viscosity of this melt depends on a number of factors, principally the level of plasticizer. Therefore, with a high plasticizer content and the resulting low dispersion viscosity, when the dispersion is preheated, the melt flows from a hopper-type coater onto the substrate;

(xiii) applied by casting onto substrates such as paper and non-woven materials. For highly calendered substrates, modified rosin derivatives and other tackifiers should be added to ensure adhesion;

(xiv) applied by casting onto substrates treated with latex, or tapes utilizing rubber adhesives that are plasticizer sensitive. Additives such as polyester polymeric plasticizers should be included to prevent migration into and softening of the continuous non-vinyl polymer;

(xv) applied by spread coating onto roll goods;

(xvi) applied by spread coating onto a previously printed release paper, fusing and then applying a solvent based adhesive over the back of the dispersion. The release paper is designed so that the printed pattern transfers from the paper to the dispersion. When unrolled, the adhesive mass is temporarily attached to the bottom surface of the release paper, and the product is right side up. The dispersion can be applied to a substrate, fused and cooled thoroughly before stripping;

(xvii) applied by coil coating onto flat metal, coiled and subsequently uncoiled and formed into finished articles. The substrate should be pre-treated with a solvent based adhesive primer, such as nitrile/phenolic/epoxy combinations, followed by flash baking or partial curing before application of retroreflective dispersions;

(xviii) applied by dip saturation. Squeeze-rollers drive out the air and yield a homogenous vinyl mass between the fibers, the excess compound is doctored off both surfaces of the material before it enters the fusion oven;

(xix) applied by curtain coating. The retroreflective dispersions flow from a slit in a hopper shaped container onto articles or materials passing through on a conveyer beneath;

(xx) applied by dip molding. This process consists of dipping a mold into the dispersion, then fusing the coating that remains on the mold. The liquid dispersions may be hot or cold, and may be stripped from the mold, or the coating may become part of the finished product;

(xxi) applied by rotational molding involving loading molds with the retroreflective dispersions, rotating and fusing the part, cooling the part and unloading. In the casting and fusing stage, the mold is rotated in two planes, perpendicular to one another. As heat penetrates the mold, the dispersion is gelled and builds up in an even distribution on the interior wall surface of the molds; the mold is then cooled and the product removed;

(xxii) applied by slush molding. The process may be a single pour method or multiple pour after partially gelling the first layer;

(xxiii) applied to filaments, wires, woven cords and the like, by strand coating using the set-die method, the floating-die method, and methods that do not require a die;

(xxiv) applied by spraying;

(xxv) applied to non-polar substrates such as polypropylene and polyethylene, the surfaces are pre-treated by passing the substrate between two electrodes and rendered polar to increase adhesion;

(xxvi) applied to substrates pre-treated with solvents such as toluene and chlorinated hydrocarbons, to increase adhesion;

(xxvii) applied to substrates pre-treated with chemical oxidizing agents such as chromic acid to increase adhesion; or is

(xxviii) applied to substrates pre-treated by exposing the substrate to an oxidizing flame for a short period to increase adhesion.

## Preferred Method:

(1) the unembossed dispersion is reheated by passing it over heated platens and embossed in a separate operation;  
 (2) a contrasting color is applied in the emboss depression by means of a tight knife pass and top coating. The top coating protects exposed surfaces from abrasion, dirt, and stain pickup and need to be formulated with high molecular weight homopolymers to minimize plasticizer migration from the substrate;  
 (3) acrylic solution polymers and cellulose acetate butyrate blended with vinyl add to the blocking resistance and dryness of the coating; and  
 (4) dispersions used in printing and flocking finishing operations, copolymer or carboxy functional dispersions are used as the adhesive.

ABEX EXAMPLE - The following ingredients were mixed in the order listed while continuous stirring took place at a medium speed with a conventional dispersion mixer for 30 minutes (parts per 100 resin): Polyvinyl chloride resin (100); polymeric plasticizer (60); barium/cadmium (zinc) stabilizer (2.5); mineral spirits (5); metallized microspheres (50); silane (0.4); polyisocyanate bonding agent (5); and color pigment (3). The dispersion was applied to a 50/50 cotton/polyester blend fabric using a manual screen printer through a 110 (43 cm) polyester mesh. A single fill pass was made, followed by a single print pass. The printed fabric was then passed through a heated chamber set at 160 degrees C (350 degrees F) for 90 seconds.

L56 ANSWER 14 OF 18 WPX COPYRIGHT 2009 THOMSON REUTERS on STN  
 ACCESSION NUMBER: 2000-116602 [10] WPX  
 DOC. NO. CPI: C2000-035660 [10]  
 DOC. NO. NON-CPI: N2000-088274 [10]  
 TITLE: Antireflective film for windows, show cases, glass, viewers or video screens  
 DERWENT CLASS: A14; A28; A89; G02; P42; P73; P81  
 INVENTOR: BARTH S A; ENNISS J P; PACKER E J; PARNANDI A; PORT A B; PORTER S J; WARD R J  
 PATENT ASSIGNEE: (COUR-C) COURTAULDS PERFORMANCE FILMS INC; (COUR-C) CPFILMS INC  
 COUNTRY COUNT: 85

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
WO 9964899	A1	19991216	(200010)*	EN	27[2]	<--	
AU 9945541	A	19991230	(200022)	EN		<--	
EP 1093592	A1	20010425	(200124)	EN		<--	
US 6245428	B1	20010612	(200135)	EN		<--	
US 20010033934	A1	20011025	(200170)	EN		<--	
KR 2001085264	A	20010907	(200218)	KO		<--	
JP 2002517791	W	20020618	(200242)	JA	23	<--	
TW 544400	A	20030801	(200411)	ZH		<--	
EP 1584953	A1	20051012	(200567)	EN			
EP 1093592	B1	20051026	(200571)	EN			
DE 69927974	E	20051201	(200580)	DE			
ES 2251199	T3	20060416	(200631)	ES			
DE 69927974	T2	20060803	(200651)	DE			

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
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WO 9964899 A1	WO 1999-US12889 19990609
US 6245428 B1	US 1998-95010 19980610
US 20010033934 A1 Div Ex	US 1998-95010 19980610
AU 9945541 A	AU 1999-45541 19990609
DE 69927974 E	DE 1999-627974 19990609
EP 1093592 A1	EP 1999-928484 19990609
EP 1584953 A1 Div Ex	EP 1999-928484 19990609
EP 1093592 B1	EP 1999-928484 19990609
DE 69927974 E	EP 1999-928484 19990609
ES 2251199 T3	EP 1999-928484 19990609
EP 1093592 A1	WO 1999-US12889 19990609
JP 2002517791 W	WO 1999-US12889 19990609
EP 1093592 B1	WO 1999-US12889 19990609
DE 69927974 E	WO 1999-US12889 19990609
TW 544400 A	TW 1999-109677 19990727
JP 2002517791 W	JP 2000-553838 19990609
KR 2001085264 A	KR 2000-713851 20001206
US 20010033934 A1	US 2001-773892 20010202
EP 1584953 A1	EP 2005-11972 19990609
EP 1093592 B1 Related to	EP 2005-11972 20050603
DE 69927974 T2	DE 1999-627974 19990609
DE 69927974 T2	EP 1999-928484 19990609
DE 69927974 T2	WO 1999-US12889 19990609

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1584953	A1 Div ex	EP 1093592 A
DE 69927974	E Based on	EP 1093592 A
ES 2251199	T3 Based on	EP 1093592 A
EP 1093592	B1 Related to	EP 1584953 A
US 20010033934	A1 Div ex	US 6245428 A
AU 9945541	A Based on	WO 9964899 A
EP 1093592	A1 Based on	WO 9964899 A
JP 2002517791	W Based on	WO 9964899 A
EP 1093592	B1 Based on	WO 9964899 A
DE 69927974	E Based on	WO 9964899 A
DE 69927974	T2 Based on	EP 1093592 A
DE 69927974	T2 Based on	WO 9964899 A

PRIORITY APPLN. INFO: US 1998-95010 19980610  
 US 2001-773892 20010202

## INT. PATENT CLASSIF.:

MAIN: B32B027-00; G02B001-11  
 IPC ORIGINAL: C08J0007-00 [I,C]; C08J0007-04 [I,A]; G02B0001-10 [I,C];  
 G02B0001-11 [I,A]  
 IPC RECLASSIF.: C08J0007-00 [I,C]; C08J0007-04 [I,A]; G02B0001-10 [I,C];  
 G02B0001-11 [I,A]  
 ECLA: C08J0007-04; G02B0001-11B  
 USCLASS NCLM: 428/421.000  
 NCLS: 427/412.100; 427/419.200; 428/215.000; 428/216.000;  
 428/329.000; 428/333.000; 428/447.000; 428/448.000;  
 428/480.000; 428/688.000

## JAP. PATENT CLASSIF.:

MAIN/SEC.: C08J0007-04 Z; G02B0001-10 A  
 FTERM CLASSIF.: 2K009; 4F006; 2K009/AA02; 4F006/AA22; 4F006/AB19;  
 4F006/AB32; 4F006/AB39; 4F006/BA02; 4F006/BA05;  
 4F006/BA14; 4F006/CA05; 2K009/CC09; 2K009/CC24;

2K009/CC26; 2K009/CC34; 2K009/CC42; 2K009/CC45;  
4F006/DA04; 2K009/DD02

## BASIC ABSTRACT:

WO 1999064899 A1 UPAB: 20060201

NOVELTY - Antireflective film (13) consists of two polymeric layer(s). One layer is an exposed outer polymeric layer (15) and other is an inner organometallic polymeric layer (14). The outer polymeric layer is comprised of fluorine containing polymer and the inner layer is comprised of condensation product of metal alkoxide and a polymer reactive with metal oxide, such as polymer having silane groups.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(i) for multi layer anti-reflective layer film which comprises a transparent polymeric film substrate having a haze value of less than 20%. The transparent film includes a transparent polymeric layer which contains inorganic powder particles having refractive index greater than 2.6;

(ii) for the manufacture of antireflective film. A reaction mixture containing metal oxide and silane modified polymer is prepared. The mixture is coated to a transparent film substrate having haze value of less than 3% and the film is cured at 180degreesC for 1 minute to form an inner polymeric layer. The inner polymeric layer formed is then coated with fluorine containing polymer and cured to form the outer polymeric layer;

(iii) manufacture of antireflective film laminate. Metal oxides are dispersed in polymeric liquid material. This dispersed polymeric liquid material is coated to a substrate and cured. The substrate is then coated with fluorine containing polymer and cured; and

(iv) for the manufacturing multilayer antireflective film which involves over coating the inner layer with outer layer by vacuum deposition.

USE - For windows, show cases, glass, viewers or video screens.

DESCRIPTION OF DRAWINGS - The figure shows

Antireflective film; (13)

Inner polymeric layer; (14)

Outer polymeric layer (15) MANUAL CODE:

CPI: A04-E10; A06-

A00E4; A06-B; A08-M09C; A09-A02;

A11-B05; A11-C02C; A12-E11A; A12-L03; A12-R04; A12-S06A;

G02-A01A; G02-A02B; G02-A02D2; G02-A05

Member(0003)

ABEQ EP 1093592 A1 UPAB 20060201

NOVELTY - Antireflective film (13) consists of two polymeric layer(s). One layer is an exposed outer polymeric layer (15) and other is an inner organometallic polymeric layer (14). The outer polymeric layer is comprised of fluorine containing polymer and the inner layer is comprised of condensation product of metal alkoxide and a polymer reactive with metal oxide, such as polymer having silane groups.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(i) for multi layer anti-reflective layer film which comprises a transparent polymeric film substrate having a haze value of less than 20%. The transparent film includes a transparent polymeric layer which contains inorganic powder particles having refractive index greater than 2.6;

(ii) for the manufacture of antireflective film. A reaction mixture containing metal oxide and silane modified polymer is prepared. The mixture is coated to a transparent film substrate having haze value of less than 3% and the film is cured at 180degreesC for 1 minute to form an inner polymeric layer. The inner polymeric layer formed is then coated with

fluorine containing polymer and cured to form the outer polymeric layer;

(iii) manufacture of antireflective film laminate. Metal oxides are dispersed in polymeric liquid material. This dispersed polymeric liquid material is coated to a substrate and cured. The substrate is then coated with fluorine containing polymer and cured; and

(iv) for the manufacturing multilayer antireflective film which involves over coating the inner layer with outer layer by vacuum deposition.

USE - For windows, show cases, glass, viewers or video screens.

DESCRIPTION OF DRAWINGS - The figure shows

Antireflective film; (13)

Inner polymeric layer; (14)

Outer polymeric layer (15)

Member(0004)

ABEQ US 6245428 B1 UPAB 20060201

NOVELTY - Antireflective film (13) consists of two polymeric layer(s). One layer is an exposed outer polymeric layer (15) and other is an inner organometallic polymeric layer (14). The outer polymeric layer is comprised of fluorine containing polymer and the inner layer is comprised of condensation product of metal alkoxide and a polymer reactive with metal oxide, such as polymer having silane groups.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(i) for multi layer anti-reflective layer film which comprises a transparent polymeric film substrate having a haze value of less than 20%. The transparent film includes a transparent polymeric layer which contains inorganic powder particles having refractive index greater than 2.6;

(ii) for the manufacture of antireflective film. A reaction mixture containing metal oxide and silane modified polymer is prepared. The mixture is coated to a transparent film substrate having haze value of less than 3% and the film is cured at 180degreesC for 1 minute to form an inner polymeric layer. The inner polymeric layer formed is then coated with fluorine containing polymer and cured to form the outer polymeric layer;

(iii) manufacture of antireflective film laminate. Metal oxides are dispersed in polymeric liquid material. This dispersed polymeric liquid material is coated to a substrate and cured. The substrate is then coated with fluorine containing polymer and cured; and

(iv) for the manufacturing multilayer antireflective film which involves over coating the inner layer with outer layer by vacuum deposition.

USE - For windows, show cases, glass, viewers or video screens.

DESCRIPTION OF DRAWINGS - The figure shows

Antireflective film; (13)

Inner polymeric layer; (14)

Outer polymeric layer (15)

TECH

INORGANIC CHEMISTRY - Preferred Compounds: The metal oxide is titanium oxide, preferably titanium isopropoxide. The inner layer contains an additive such as carbodiimide functional silane. The inorganic powder particles are colored powders, such as iron oxide, preferably hematite having an average equivalent diameter

of less than 100 nm.

POLYMERS - Preferred Compounds: The silane containing polymer is a silane modified polyester. The outer polymeric layer is an acrylate modified

prefluoropolyether. The polymerizable material is a polymerizable monomer which includes an acrylic acid, photoinitiators and triacrylate or tetraacrylate.

IMAGING AND COMMUNICATION - Preferred Structure: Antireflective film contains an optically active layer between the substrate and inner layer. A hard abrasion resistance coating is provided on the film substrate.

Preferred Properties: The refractive index of inner polymeric layer and outer polymeric layer are at least

1.6 and less than 1.45 respectively. The thickness of both the inner and outer layer is 0.25 of the wavelength. The powder particles present in multilayer antireflective film increases the refractive index to at least 1.6. The refractive index of inner layer can be altered by varying the iron oxide content of the polymeric layer

. The multi layer antireflective film is imparted with color including a suitable time in the polymeric film substrate or in the polymeric layers.

Preferred Process: The reaction mixture is added with up to 10 weight percent of crosslinking agent such as carbodiimide functional silane and the first layer is applied in the solution

state by dissolving in a volatile solvent which is removed before curing.

ABEX EXAMPLE - An acidic methyl ethyl ketone (MEK) solution was prepared by dissolved in 2.5 g of MEK in 0.05 ml of 10 N hydrochloric acid. A ceramer is prepared by adding 2.5 g of titanium isopropoxide to the above prepared acid MEK solution. The solution was processed and was added with 2% of crosslinking agent. The ceramer solution was coated on a substrate to form an inner polymeric layer and was found to have a refractive index of 1.69-1.71. Acrylated monomers were reacted with isocyanate fluoropolymers using suitable solvent at room temperature when there was no residual isocyanate the acrylated fluoropolymer was cured on the inner carbonic layer to form the low refractive index outer polymer layer of refractive index 1.37-1.4.

L56 ANSWER 15 OF 18 WPIX COPYRIGHT 2009 THOMSON REUTERS ON STN  
 ACCESSION NUMBER: 1999-106027 [09] WPIX  
 DOC. NO. CPI: C1999-031731 [09]  
 TITLE: Thermosettable adhesive multilayer and method of bonding - comprises acrylic ester, thermosettable epoxy amine curative, silane coupling agent and chelating agent  
 DERWENT CLASS: A14; A21; A81; E19; G03  
 INVENTOR: KARIM N  
 PATENT ASSIGNEE: (MINN-C) MINNESOTA MINING & MFG CO  
 COUNTRY COUNT: 77

#### PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 9901520	A1	19990114	(199909)*	EN	32[0]	<--
US 5883193	A	19990316	(199918)	EN		<--
AU 9850924	A	19990125	(199923)	EN		<--
EP 993496	A1	20000419	(200024)	EN		<--
JP 2002509572	W	20020326	(200236)	JA	32	<--
EP 993496	B1	20040428	(200429)	EN		
DE 69728907	E	20040603	(200436)	DE		

JP 4045357 B2 20080213 (200813) JA 15

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9901520 A1		WO 1997-0519532	19971029
US 5883193 A		US 1997-886750	19970701
DE 69728907 E		DE 1997-69728907	19971029
EP 993496 A1		EP 1997-913832	19971029
EP 993496 B1		EP 1997-913832	19971029
DE 69728907 E		EP 1997-913832	19971029
EP 993496 A1		WO 1997-US19532	19971029
JP 2002509572 W		WO 1997-US19532	19971029
EP 993496 B1		WO 1997-US19532	19971029
DE 69728907 E		WO 1997-US19532	19971029
AU 9850924 A		AU 1998-50924	19971029
JP 2002509572 W		JP 1999-508603	19971029
JP 4045357 B2		WO 1997-US19532	19971029
JP 4045357 B2		JP 1999-508603	19971029

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 69728907	E	Based on EP 993496 A
AU 9850924	A	Based on WO 9901520 A
EP 993496	A1	Based on WO 9901520 A
JP 2002509572	W	Based on WO 9901520 A
EP 993496	B1	Based on WO 9901520 A
DE 69728907	E	Based on WO 9901520 A
JP 4045357	B2	Previous Publ JP 2002509572 W
JP 4045357	B2	Based on WO 9901520 A

PRIORITY APPLN. INFO: US 1997-886750 19970701

## INT. PATENT CLASSIF.:

MAIN: C09J163-00

IPC ORIGINAL: C09J0133-06 [I,A]; C09J0133-06 [I,C]; C09J0163-00 [I,A]; C09J0163-00 [I,C]; C09J0004-06 [I,A]; C09J0004-06 [I,C]; C09J0005-06 [I,A]; C09J0005-06 [I,C]

IPC RECLASSIF.: C09J0163-00 [I,A]; C09J0163-00 [I,C]; C09J0004-06 [I,A]; C09J0004-06 [I,C]

ECLA: C09J0004-06+283/10

## JAP. PATENT CLASSIF.:

MAIN/SEC.: C09J0133-06; C09J0163-00; C09J0004-06; C09J0005-06

MAIN: C09J0163-00

SECONDARY: C09J0133-06; C09J0004-06; C09J0005-06

FTERM CLASSIF.: 4J040; 4J040/EC03.1; 4J040/EC03.2; 4J040/EC04.1; 4J040/EC04.2; 4J040/EC06.1; 4J040/EC06.2; 4J040/EC07.1; 4J040/EC07.2; 4J040/EC08.1; 4J040/EC08.2; 4J040/EC15.1; 4J040/EC15.2; 4J040/EC26.1; 4J040/EC26.2; 4J040/FA10.1; 4J040/FA10.2; 4J040/FA13.1; 4J040/FA13.2; 4J040/FA14.1; 4J040/FA14.2; 4J040/FA15.1; 4J040/FA15.2; 4J040/FA16.1; 4J040/FA16.2; 4J040/FA17.1; 4J040/FA17.2; 4J040/FA19.1; 4J040/FA19.2; 4J040/HB11; 4J040/HB16; 4J040/HB20; 4J040/HB37; 4J040/HB40; 4J040/HC09; 4J040/HC16; 4J040/HC17; 4J040/HC18; 4J040/HC21; 4J040/HD19; 4J040/HD32; 4J040/HD35; 4J040/HD36; 4J040/HD37; 4J040/HD43; 4J040/JO02; 4J040/KA16; 4J040/KA43; 4J040/LA06; 4J040/LA07; 4J040/LA08; 4J040/MA02;

## BASIC ABSTRACT:

WO 1999001520 A1 UPAB: 20050829

A thermosettable adhesive composition (C) comprises a monomeric or oligomeric composition comprising > 1 polymerisable (meth)acrylic ester of a non-tertiary alcohol, a thermosetting epoxy resin, an amine curative, a silane coupling agent, and a chelating agent.

Also claimed are (1) a multi-layer structure comprising a layer of poly (meth)acrylate, thermosettable epoxy resin and an amine curing agent. Upon this layer is a further layer of chelating agent and a silane coupling agent.

(2) a method of bonding two substrate comprising coating one substrate with (C), contacting the other substrate with this and thermally curing the composition.

USE - In forming adhesive bonds to glass or between glass substrates which are durable under high humidity, especially in the automotive industry as in bonding metal buttons to glass windshields (claimed) in mounting rear view mirrors

ADVANTAGE - There is no need for surface pre-treatment and the adhesive bond is maintained under conditions of heat and high humidity and after prolonged soaking in hot water. MANUAL CODE: CPI: A08-A07; A08-D03; A08-M01D; A11-C01D; A12-A05;

E05-E; E06-A03; E06-D02; E10-A20B; E10-E02D5; E10-E04H;  
G03-B02D1; G03-B02E2; G03-B03

Member (0002)

ABEQ US 5883193 A UPAB 20050829

A thermosettable adhesive composition (C) comprises a monomeric or oligomeric composition comprising > 1 polymerisable (meth)acrylic ester of a non-tertiary alcohol, a thermosetting epoxy resin, an amine curative, a silane coupling agent, and a chelating agent.

Also claimed are (1) a multi-layer structure comprising a layer of poly (meth)acrylate, thermosettable epoxy resin and an amine curing agent. Upon this layer is a further layer of chelating agent and a silane coupling agent.

(2) a method of bonding two substrate comprising coating one substrate with (C), contacting the other substrate with this and thermally curing the composition.

USE - In forming adhesive bonds to glass or between glass substrates which are durable under high humidity, especially in the automotive industry as in bonding metal buttons to glass windshields (claimed) in mounting rear view mirrors

ADVANTAGE - There is no need for surface pre-treatment and the adhesive bond is maintained under conditions of heat and high humidity and after prolonged soaking in hot water.

Member (0004)

ABEQ EP 993496 A1 UPAB 20050829

A thermosettable adhesive composition (C) comprises a monomeric or oligomeric composition comprising > 1 polymerisable (meth)acrylic ester of a non-tertiary alcohol, a thermosetting epoxy resin, an amine curative, a silane coupling agent, and a chelating agent.

Also claimed are (1) a multi-layer structure comprising a layer of poly (meth)acrylate, thermosettable epoxy resin and an amine curing agent. Upon this layer is a further layer of chelating agent and a silane coupling agent.

(2) a method of bonding two substrate comprising coating one substrate with (C), contacting the other substrate with this and thermally curing the composition.

USE - In forming adhesive bonds to glass or between glass substrates which are durable under high humidity, especially in the automotive industry as in bonding metal buttons to glass windshields (claimed) in mounting rear view mirrors

ADVANTAGE - There is no need for surface pre-treatment and the adhesive bond is maintained under conditions of heat and high humidity and after prolonged soaking in hot water.

L56 ANSWER 16 OF 18 WPIX COPYRIGHT 2009 THOMSON REUTERS on STN  
 ACCESSION NUMBER: 1998-610645 [51] WPIX  
 DOC. NO. CPI: C1998-183143 [51]  
 TITLE: Low density, low dielectric constant film - has deposit within and on top of layer of particles  
 DERWENT CLASS: A85; E11; L03; U11; V05; V07  
 INVENTOR: HAMPDEN-SMITH M J; KODAS T T; SKAMSER D J  
 PATENT ASSIGNEE: (HAMP-I) HAMPDEN-SMITH M J; (KODA-I) KODAS T T; (SKAM-I) SKAMSER D J  
 COUNTRY COUNT: 79

## PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC
WO 9850945	A2 19981112	(199851)*	EN	35[8]	<--
AU 9873718	A 19981127	(199915)	EN		<--

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9850945 A2		WO 1998-US9295	19980506
AU 9873718 A		AU 1998-73718	19980506

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 9873718 A	Based on	WO 9850945 A

PRIORITY APPLN. INFO: US 1997-852362 19970507

## INT. PATENT CLASSIF.:

IPC RECLASSIF.: C03C0017-00 [I,A]; C03C0017-00 [I,C]; C08K0007-00 [I,C]; C08K0007-24 [I,A]; C08K0007-26 [I,A]; H01L0021-02 [I,C]; H01L0021-316 [I,A]

ECLA: C03C0017-00D2; C03C0017-00D4B; C08K0007-24; C08K0007-26; H01L0021-316P

ICO: M03C0217:190; M03C0217:194; M03C0217:374

## BASIC ABSTRACT:

WO 1998050945 A2 UPAB: 20060115

A film has a dielectric constant of less than 3 and has a layer of particles and a deposit within and on top of the particles layer. The manufacture of the film is also claimed and comprises coating a substrate with particles, drying to form a uniform particle layer and depositing a deposit layer on the particle layer.

USE - Used in energy storage devices, waveguides, lenses, optical fibres, thermal insulation, glass coatings, integrated circuits, devices incorporating ICs, flat panel display circuitry, field emission displays, powder EL displays, electrical insulation and thermal barrier layers (all claimed).

ADVANTAGE - The materials are compatible with existing and likely

future equipment, processes, metallisation materials, etc. Formation is at low temperature and ambient pressure. The films are gas impermeable and can be made both thick or thin. MANUAL CODE: CPI: A09-A03; A12-S06; A12-S06A; E05-E; E31-P03; L03-D

EPI: U11-A08A; V05-A01C7; V07-F01A1; V07-F01A3B

L56 ANSWER 17 OF 18 WPIX COPYRIGHT 2009 THOMSON REUTERS on STN  
 ACCESSION NUMBER: 1997-555828 [51] WPIX  
 DOC. NO. CPI: C1997-177669 [51]  
 DOC. NO. NON-CPI: N1997-463116 [51]  
 TITLE: Photochromic plastic optical article - comprises synthesised resin substrate contg photochromic substance, hard coat layer, and anti-reflection coating  
 DERWENT CLASS: A89; G06; P81; P83  
 INVENTOR: NIIKURA H  
 PATENT ASSIGNEE: (NIKR-C) NIKON CORP  
 COUNTRY COUNT: 1

# PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 09269402	A	19971014	(199751)*	JA	7[0]	<--

# APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 09269402 A		JP 1996-80288	19960402

PRIORITY APPLN. INFO: JP 1996-80288 19960402  
 INT. PATENT CLASSIF.:  
 IPC RECLASSIF.: G02B0001-04 [I,A]; G02B0001-04 [I,C]; G02B0001-10 [I,A]; G02B0001-10 [I,C]; G02B0001-11 [I,A]; G02B0005-22 [I,C]; G02B0005-23 [I,A]; G02C0007-02 [I,A]; G02C0007-02 [I,C]; G03C0001-72 [I,C]; G03C0001-725 [I,A]  
 JAP. PATENT CLASSIF.:  
 MAIN/SEC.: G02B0001-04; G02B0001-10 A; G02B0001-10 Z; G02B0005-23; G02C0007-02  
 FTERM CLASSIF.: 2H006; 2H048; 2K009; 2K010; 2K009/AA02; 2K009/AA15; 2K009/BB11; 2K009/CC03; 2K009/CC21; 2H048/DA04; 2H048/DA09; 2H048/DA24; 2K009/DD03; 2K009/DD04

# BASIC ABSTRACT:

JP 09269402 A UPAB: 20050519  
 A photochromic plastic optical article, comprises: (1) a synthesised resin substrate contg a photochromic substance; (2) a hard coat layer having an almost constant refractive index, contg Si and O, formed by CVD, and provided on the substrate; and (3) an anti-reflection coating comprising an inorganic oxide, formed by vacuum deposition on the hard coat layer.  
 USE - The photochromic plastic optical article is particularly useful as an eye glass having a photochromic effect.

ADVANTAGE - The substrate is not exposed to the air during the processing and all the steps can be carried out continuously, i.e. the obtained article is free from any bad effects from air or water and shows high contact (adhesivity) and scratch resistance. The photochromic plastic lens shows high hot water resistance, alkali resistance, acid resistance, heat resistance, antistatic property etc. The produced photochromic plastic lens also has an excellent surface hardness. MANUAL CODE: CPI: A12-L02A; A12-L03; G04-A01

L56 ANSWER 18 OF 18 WPIX COPYRIGHT 2009 THOMSON REUTERS on STN

## 10/588459

ACCESSION NUMBER: 1988-208683 [30] WPIX  
 DOC. NO. CPI: C1988-105283 [21]  
 DOC. NO. NON-CPI: N1988-179014 [21]  
 TITLE: Multilayer ceramic protective coatings for  
 electronic devices - has planarising layer of a solvent  
 diluted catalysed hydrogen silsesquioxane resin  
 and silicon-containing passivating and coating layers  
 A85; E36; L03; P73; U11; U14  
 DERWENT CLASS: A85; E36; L03; P73; U11; U14  
 INVENTOR: HALUSKA L A; MICHAEL K W; TARHAY L  
 PATENT ASSIGNEE: (DOWO-C) DOW CORNING CORP  
 COUNTRY COUNT: 7

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 63144524	A	19880616	(198830)*	JA	43[0]	<--
EP 270229	A	19880608	(198834)	EN		<--
US 4822697	A	19890418	(198918)	EN	13	<--
ES 2005468	A	19890301	(198939)	ES		<--
US 4898907	A	19900206	(199012)	EN	8	<--
EP 466205	A	19920115	(199203)	EN		<--
EP 270229	B1	19920715	(199229)	EN	19[0]	<--
DE 3780416	G	19920820	(199235)	DE		<--
EP 466205	B1	19930908	(199336)	EN	7[0]	<--
DE 3787381	G	19931014	(199342)	DE		<--
KR 9401624	B1	19940228	(199503)	KO		<--
CA 1339852	C	19980505	(199829)	EN		<--

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 63144524 A		JP 1987-303429	19871202
US 4822697 A		US 1986-937273	19861203
US 4898907 A		US 1986-937273	19861203
CA 1339852 C		CA 1987-549113	19871013
DE 3780416 G		DE 1987-3780416	19871022
DE 3787381 G		DE 1987-3787381	19871022
EP 270229 A		EP 1987-309356	19871022
EP 270229 B1		EP 1987-309356	19871022
DE 3780416 G		EP 1987-309356	19871022
EP 466205 B1	Related to	EP 1987-309356	19871022
ES 2005468 A		ES 1987-3424	19871130
KR 9401624 B1		KR 1987-13691	19871203
US 4822697 A		US 1988-263206	19881027
US 4898907 A		US 1988-263206	19881027
EP 466205 A		EP 1991-114980	19871022
EP 466205 B1		EP 1991-114980	19871022
DE 3787381 G		EP 1991-114980	19871022

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 3780416 G	Based on	EP 270229 A
DE 3787381 G	Based on	EP 466205 A

PRIORITY APPLN. INFO: US 1988-263206 19881027  
 US 1986-937273 19861203

## INT. PATENT CLASSIF.:

MAIN: C04B041-50  
 SECONDARY: C04B035-14  
 IPC RECLASSIF.: C04B0041-45 [I,C]; C04B0041-50 [I,A]; C04B0041-52 [I,A];  
 C23C0018-00 [I,C]; C23C0018-12 [I,A]; H01L0021-02 [I,C];  
 H01L0021-312 [I,A]; H01L0021-314 [I,A]; H01L0021-314  
 [N,A]; H01L0021-316 [I,A]; H01L0021-56 [I,A]; H01L0023-28  
 [I,C]; H01L0023-29 [I,A]; H05K0003-28 [I,A]; H05K0003-28  
 [I,C]

## ECLA:

C04B0041-50P14; C04B0041-50R58H; C04B0041-52;  
 C23C0018-12; H01L0021-312B2B; H01L0021-316; H01L0021-56;  
 H01L0023-29C; H01L0023-29P6

## ICO:

T01L0021:314E2D; T01L0021:314E2E; T01L0021:316B2B

## USCLASS NCLM:

428/698.000; 524/490.000

## NCLS:

106/287.100; 106/287.140; 257/E21.262; 257/E21.271;  
 257/E21.279; 257/E21502; 257E23118; 257E23120; 427074000;  
 427096200; 427096800; 427126200; 427126400; 427255393;  
 427376200; 427380000; 427419200; 427419700; 427489000;  
 427517000; 427574000; 427586000; 428702000; 428704000;  
 524588000; 524859000; 528015000; 528031000

## JAP. PATENT CLASSIF.:

MAIN/SEC.: H01L0021-312 C; H01L0021-312 M; H01L0021-314 A;  
 H01L0021-314 M; H05K0003-28 A

## FTERM CLASSIF.:

5E314; 5F058; 5E314/AA01; 5F058/AA02; 5E314/AA03;  
 5F058/AA04; 5F058/AC03; 5F058/AC10; 5F058/AF01;  
 5F058/AF02; 5F058/AF04; 5F058/AG01; 5F058/AH03;  
 5E314/BB01; 5E314/CC03; 5E314/CC04; 5E314/CC13;  
 5E314/CC20; 5E314/DD06; 5E314/FF21; 5E314/GG01;  
 5E314/GG02; 5E314/GG08

## BASIC ABSTRACT:

JP 63144524 A UPAB: 20060105

Multilayer ceramic or ceramic-like coatings are formed on a surface by (I) (A) coating an electronic device with a planarising layer of a solvent-diluted mixture of a hydrogen silsesquioxane resin and a Pt or Rh catalyst, (B) evaporating the solvent and (C) ceramifying to coating to SiO<sub>2</sub> by heating to 150-1000 deg. C to produce a ceramic or ceramic-like planarising coating: (II) a passivating coating applied chosen from (i) a Si and N containing coating, (ii) a Si and C containing coating and (iii) a Si, N and C containing coating. Layer is applied by (a) chemical vapour deposition (CVD) of a silane, halosilane, halodisilane, halopolysilane or mixts. of these in the presence of NH<sub>3</sub>, (b) plasma enhanced CVD of a silane, halosilane halodisilane, halopolysilane or mixts. of these in the presence of NH<sub>3</sub>, or (9) by ceramification of a Si and N containing preceramic polymer. Layer (iii) is applied by (1) CVD of hexamethyldisilazane, (2) plasma enhanced CVD of hexamethyldisilazane, (3) CVD of a silane, alkylsilane, halosilane, halodisilane, halopolysilane or a mixture of these in the presence of a 1-6C alkane or an alkylsilane and NH<sub>3</sub>, or (4) plasma enhanced CVD of a silane, alkylsilane, halosilane, halodisilane, halopolysilane or a mixture of these in the presence of a 1-6C alkane or an alkyl-silane and NH<sub>3</sub>. Layer (ii) is formed by (a) CVD of an alkylsilane, halosilane, halodisilane, halopolysilane or a mixture of these in the presence of a 1-6C alkane or an alkyl-silane or (b) plasma-enhanced CVD of an alkylsilane, halosilane, halodisilane, halopolysilane or a mixture of these in the presence of a 1-6C alkane or an alkyl-silane. (III) a Si-containing coating is applied chosen from (i) a Si coating, (ii) a Si and C containing coating, (iii) a Si and N containing coating and (iv) a Si, N and C containing coating. (First major country equivalent to J63144524-A) MANUAL CODE:

CPI: A06-A00E2; A12-E01; A12-W12G; E05-M; E05-N; E31-D04;  
 E31-P01; E31-P06C; E31-P06D; L02-G07; L02-H02; L04-C12  
 EPI: U11-A07; U11-C05A; U11-C05B5; U11-D01C; U11-D03B2;  
 U11-E02; U14-H03B

Member(0003)

ABEQ US 4822697 A UPAB 20060105

Prodn. of multilayer, dual layer and monolayer ceramic or ceramic-like coatings on a substrate is claimed. Process involves application of a planarising coating into an electronic device by (1) diluting hydrogen silsesquioxane resin with solvent, (2) catalysing the soln. with Pt or Rh catalyst, (3) applying the soln. to the device, (4) drying to evaporator solvent and leave a preceramic coating, and (4) ceramifying to coating to SiO<sub>2</sub> by heating to 150-1000 deg.C.

ADVANTAGE - Process can be effected at relatively low temp. wt. loss the coating is reduced; and microcracking of subsequently applied layers is mitigated. - (13pp)

Member(0005)

ABEQ US 4898907 A UPAB 20060105

New compsn. comprises a solvent soln. of a mixt. of (a) hydrogen silsesquioxane resin, and (b) a metal catalyst selected from platinum and rhodium catalysts. Pref. the soln. contains 0.1-10 percent by wt. of (a), esp. 1 or 5 percent by wt. of (a). Pref. the solvent is toluene or n-heptane. Pref. the metal catalyst is RhCl<sub>3</sub>(CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>S)<sub>3</sub>, (CH<sub>3</sub>CH<sub>2</sub>S)<sub>2</sub>PtCl<sub>2</sub> or Pt(CH<sub>3</sub>CH(O)CHCH(O)CH<sub>3</sub>)<sub>2</sub>.

USE - New compsn. is useful in the prodn. of ceramic-or ceramic-like planarising coatings from carbon-free precursors, for the protection of e.g. electronic devices. - (8pp)

=&gt; d his 155

(FILE 'WPIX' ENTERED AT 13:06:35 ON 25 NOV 2009)  
SAVE TEMP L54 PAR459WPIX/A

FILE 'STNGUIDE' ENTERED AT 13:21:33 ON 25 NOV 2009

FILE 'HCAPLUS' ENTERED AT 13:25:30 ON 25 NOV 2009

L55 9 S L42 AND (AY&lt;2004 OR PRY&lt;2004 OR PY&lt;2004)

=&gt; d que 155

L2 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7631-86-9/RN  
L3 1 SEA FILE=REGISTRY ABB=ON PLU=ON 13463-67-7/RN  
L5 1 SEA FILE=REGISTRY ABB=ON PLU=ON 9004-34-6/RN  
L6 1 SEA FILE=REGISTRY ABB=ON PLU=ON 9004-34-6/RN  
L7 1 SEA FILE=REGISTRY ABB=ON PLU=ON 25189-83-7/RN  
L8 1 SEA FILE=REGISTRY ABB=ON PLU=ON 25322-69-4/RN  
L9 1 SEA FILE=REGISTRY ABB=ON PLU=ON 224789-91-7/RN  
L12 893059 SEA FILE=HCAPLUS ABB=ON PLU=ON SILICA OR (SI OR SILICON) (W)  
(OXIDE# OR OXIDIZ? OR DIOXIDE#) OR SIO2  
L13 329617 SEA FILE=HCAPLUS ABB=ON PLU=ON L2 (L) (TEM OR USES)/RL  
L14 258359 SEA FILE=HCAPLUS ABB=ON PLU=ON TITANIA OR (TI OR TITANIUM)  
(W) (OXIDE# OR DIOXIDE#)  
L15 154578 SEA FILE=HCAPLUS ABB=ON PLU=ON L3 (L) (TEM OR USES)/RL  
L16 QUE ABB=ON PLU=ON PIGMENT# OR COLOR? OR COLOUR? OR DYE  
? OR STAIN? OR CHROMOPHOR? OR CHROMOGEN? OR PAINT?  
L17 QUE ABB=ON PLU=ON POLYMER? OR COPOLYMER? OR TERPOLYMER  
? OR HOMOPOLYMER? OR RESIN#  
L18 118282 SEA FILE=HCAPLUS ABB=ON PLU=ON SILANE#  
L19 215096 SEA FILE=HCAPLUS ABB=ON PLU=ON POLYMERS/CT  
L21 23252 SEA FILE=HCAPLUS ABB=ON PLU=ON SILANES/CT  
L22 4864 SEA FILE=HCAPLUS ABB=ON PLU=ON (HALOGRAPH? OR PEARLESC? OR  
INTERFEREN? OR BIOCL) (2A) L16  
L23 166540 SEA FILE=HCAPLUS ABB=ON PLU=ON (MULTI? OR MUL(W)TI OR  
MULTIPLE OR SEVERAL? OR PLURAL? OR DOUBL? OR TRIPL?) (2A)  
(LAYER? OR FILM? OR THINFILM?)  
L24 26751 SEA FILE=HCAPLUS ABB=ON PLU=ON ((L12 OR L13 OR L14 OR L15)  
OR L22 OR L23) AND (L18 OR L21)  
L25 12762 SEA FILE=HCAPLUS ABB=ON PLU=ON L24 AND (L17 OR L19)  
L26 346940 SEA FILE=HCAPLUS ABB=ON PLU=ON COATING MATERIALS/CT  
L27 QUE ABB=ON PLU=ON (COAT? OR TOPCOAT? OR OVERCOAT? OR O  
VERSPREAD? OR FILM? OR THINFILM? OR OVERLAY? OR OVERLAID?  
OR LAMINAT?)  
L28 6014 SEA FILE=HCAPLUS ABB=ON PLU=ON L27 AND L25  
L29 346940 SEA FILE=HCAPLUS ABB=ON PLU=ON L27 AND L26  
L30 61928 SEA FILE=HCAPLUS ABB=ON PLU=ON ((L5 OR L6 OR L7 OR L8 OR  
L9)) (L) (TEM OR USES)/RL  
L31 113 SEA FILE=HCAPLUS ABB=ON PLU=ON L28 AND L30  
L32 4282 SEA FILE=HCAPLUS ABB=ON PLU=ON L29 AND L30  
L33 198428 SEA FILE=HCAPLUS ABB=ON PLU=ON (MULTI? OR MUL(W)TI OR  
MULTIPLE OR SEVERAL? OR PLURAL? OR DOUBL? OR TRIPL?) (2A)  
(LAYER? OR STRUCTURE?)  
L36 52 SEA FILE=HCAPLUS ABB=ON PLU=ON L31 AND (SUBSTRATE# OR  
PARTICLE# OR MICROPARTICLE#)  
L37 18 SEA FILE=HCAPLUS ABB=ON PLU=ON L36 AND 42/SC, SX  
L38 3 SEA FILE=HCAPLUS ABB=ON PLU=ON L37 AND (MULTI? OR MUL(W)TI  
OR MULTIPLE OR SEVERAL? OR PLURAL?)  
L39 2138 SEA FILE=HCAPLUS ABB=ON PLU=ON L32 AND 42/SC, SX

L40 615 SEA FILE=HCAPLUS ABB=ON PLU=ON L39 AND (SUBSTRATE# OR  
PARTICLE# OR MICROPARTICLE#)  
L41 16 SEA FILE=HCAPLUS ABB=ON PLU=ON L40 AND L33  
L42 18 SEA FILE=HCAPLUS ABB=ON PLU=ON L38 OR L41  
L55 9 SEA FILE=HCAPLUS ABB=ON PLU=ON L42 AND (AY<2004 OR PRY<2004  
OR PY<2004)

=> d 155 1-9 ibib abs hitind

L55 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2009 ACS ON STN  
ACCESSION NUMBER: 2005:15834 HCAPLUS Full-text  
DOCUMENT NUMBER: 142:95294  
TITLE: A method of reducing the color contribution of a  
coated top layer in a  
multilayer material  
INVENTOR(S): Graf, John Frederick; Pickett, James Edward  
PATENT ASSIGNEE(S): USA  
SOURCE: U.S. Pat. Appl. Publ., 11 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050003208	A1	20050106	US 2003-611729	20030701 <--
WO 2005005144	A1	20050120	WO 2004-US20047	20040623 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1644187	A1	20060412	EP 2004-776937	20040623 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK				
CN 1784304	A	20060607	CN 2004-80012152	20040623 <--
JP 2007524526	T	20070830	JP 2006-517557	20040623 <--
KR 2006029160	A	20060404	KR 2005-725396	20051230 <--
PRIORITY APPLN. INFO.: US 2003-611729 A 20030701 <-- WO 2004-US20047 W 20040623				

AB A multilayer article comprises (a) at least one substrate comprising a first material, (b) an intermediate layer, and (c) a surface film comprising a thermoplastic polyester different from the intermediate layer, the surface film and intermediate layer are both transparent, and the intermediate layer having a refractive index lower than that of the surface film. The presence of the intermediate layer with a lower refractive index provides the multilayer article with reduced color contribution of the top layer (yellowing prevention), thus lower amts. of color compensating pigments and dyes must be added in order to achieve the desired color of the article. Thus, a laminated plastic material comprising an outer layer of a block copolymer of a resorcinol-based polyester and bisphenol A polycarbonate, an intermediate PMMA

layer (Elvacite 2041), and a substrate of Lexan 140 polycarbonate was produced by coextrusion.

IC ICM B32B027-36

ICS B32B027-06; B32B015-04; B32B027-00; B32B017-06

INCL 428426000; 428457000; 428480000; 428500000

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 39, 42

ST reduced yellowness plastic film multilayer material

IT Epoxy resins, uses

Polycarbonates, uses

Polyesters, uses

Polyurethanes, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(aliphatic, intermediate layer; multilayer materials with reduced color contribution of coated top layer)

IT Wheels

(automotive, covers for; multilayer materials with reduced color contribution of coated top layer)

IT Windows

(automotive, frames; multilayer materials with reduced color contribution of coated top layer)

IT Mirrors

(automotive, housings for; multilayer materials with reduced color contribution of coated top layer)

IT Doors

IT Roofs

(automotive; multilayer materials with reduced color contribution of coated top layer)

IT Ships

(boats, components; multilayer materials with reduced color contribution of coated top layer)

IT Automobiles

(bodies, side moldings; multilayer materials with reduced color contribution of coated top layer)

IT Automobiles

(bumpers; multilayer materials with reduced color contribution of coated top layer)

IT Extrusion of plastics and rubbers

(coextrusion; multilayer materials with reduced color contribution of coated top layer)

IT Aircraft

(components; multilayer materials with reduced color contribution of coated top layer)

IT Furniture

(countertops; multilayer materials with reduced color contribution of coated top layer)

IT Turf

(golf green, markers for; multilayer materials with reduced color contribution of coated top layer)

IT Electric lamps

(headlights, housings for; multilayer materials with reduced color contribution of coated top layer)

IT Clothing

Safety devices

(helmets; multilayer materials with reduced color contribution of coated top layer)

IT Automobiles

(hoods; multilayer materials with reduced color contribution of coated top layer)

IT Air conditioners

Antennas  
 Computers  
 Electric circuits  
 Electrophotographic apparatus  
 Engines  
 Fax machines  
 Measuring apparatus  
 Optical imaging devices  
 Printing apparatus  
 Telephones  
 Transformers  
     (housings for; multilayer materials with reduced color contribution of coated top layer)  
 IT Molding of plastics and rubbers  
     (injection; multilayer materials with reduced color contribution of coated top layer)  
 IT Acrylic polymers, uses  
     Butadiene rubber, uses  
     Ethylene-propylene rubber  
     Ionomers  
     Natural rubber, uses  
     Polyoxymethylenes, uses  
     Polysiloxanes, uses  
     Polyvinyl butyrals  
     RL: TEM (Technical or engineered material use); USES (Uses)  
         (intermediate layer; multilayer materials with reduced color contribution of coated top layer)  
 IT Photographic films  
     Photographic paper  
     Textiles  
         (laminated; multilayer materials with reduced color contribution of coated top layer)  
 IT Plastic foams  
     RL: TEM (Technical or engineered material use); USES (Uses)  
         (laminated; multilayer materials with reduced color contribution of coated top layer)  
 IT Extrusion of plastics and rubbers  
     (lamination; multilayer materials with reduced color contribution of coated top layer)  
 IT Tractors  
     (lawn and garden, parts; multilayer materials with reduced color contribution of coated top layer)  
 IT Coating materials  
     (light-resistant; multilayer materials with reduced color contribution of coated top layer)  
 IT Coating process  
     Construction materials  
     Discoloration prevention  
     Doors  
     Electric apparatus  
     Electric lamps  
     Floor coverings  
     Floors  
     Glass substrates  
         Laminated materials  
     Light-resistant materials  
     Roofs  
     Sporting goods  
     Toys  
     Transparent materials

Windows  
 Yellowing prevention  
 (multilayer materials with reduced color contribution of coated top layer)

IT Aminoplasts  
 Extruded plastics  
 Fluoropolymers, uses  
 Laminated plastics, uses  
 Molded plastics, uses  
 Polyesters, uses  
 Polymer blends  
 Polyoxymethylenes, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (multilayer materials with reduced color contribution of coated top layer)

IT Sign materials  
 (outdoor and indoor, protective materials for; multilayer materials with reduced color contribution of coated top layer)

IT Furniture  
 (outdoor; multilayer materials with reduced color contribution of coated top layer)

IT Automobiles  
 (panels; multilayer materials with reduced color contribution of coated top layer)

IT Automobiles  
 Motorcycles  
 Trucks  
 Vehicles  
 (parts; multilayer materials with reduced color contribution of coated top layer)

IT Polyesters, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (polycarbonate-, block, outer layer; multilayer materials with reduced color contribution of coated top layer)

IT Polycarbonates, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (polyester-, block, outer layer; multilayer materials with reduced color contribution of coated top layer)

IT Safety devices  
 (protective clothing; multilayer materials with reduced color contribution of coated top layer)

IT Clothing  
 (protective; multilayer materials with reduced color contribution of coated top layer)

IT Acoustic devices  
 (radios, housings for; multilayer materials with reduced color contribution of coated top layer)

IT Upholstery  
 (seats for public transportation, trains, subways or buses; multilayer materials with reduced color contribution of coated top layer)

IT Automobiles  
 (spoilers; multilayer materials with reduced color contribution of coated top layer)

IT Ceramics  
 (substrates; multilayer materials with reduced color contribution of coated top layer)

IT Metals, uses

Plastics, uses  
 Polycarbonates, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (substrates; multilayer materials with reduced color  
 contribution of coated top layer)

IT Plastic films  
 (thermo-; multilayer materials with reduced color contribution of  
 coated top layer)

IT Paintings  
 (treated glass covers for; multilayer materials with reduced color  
 contribution of coated top layer)

IT Automobiles  
 (trim; multilayer materials with reduced color contribution of  
 coated top layer)

IT Construction materials  
 (wall panels; multilayer materials with reduced color contribution of  
 coated top layer)

IT 25037-45-0, Bisphenol A-carbonic acid copolymer  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (assumed monomers, substrate; multilayer materials with  
 reduced color contribution of coated top layer)

IT 9003-17-2  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (butadiene rubber, intermediate layer; multilayer  
 materials with reduced color contribution of coated top  
 layer)

IT 9010-79-1  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (ethylene-propylene rubber, intermediate layer;  
 multilayer materials with reduced color contribution of  
 coated top layer)

IT 9002-85-1, Poly(vinylidene chloride) 9002-86-2, Poly(vinyl chloride)  
 9002-88-4, Polyethylene 9002-89-5, Poly(vinyl alcohol) 9003-07-0,  
 Polypropylene 9003-08-1, Melamine-formaldehyde polymer 9003-27-4,  
 Polyisobutylene 9003-29-6, Polybutylene 9003-31-0, Polyisoprene  
 9004-34-6D, Cellulose, esters 9011-05-6, Urea-formaldehyde  
 polymer 9011-14-7, Elvacite 2041 9032-47-7 24937-79-9,  
 Poly(vinylidene fluoride) 24981-14-4, Poly(vinyl fluoride) 25068-14-8,  
 Polyacrolein 25322-68-3, Poly(ethylene oxide) 25322-69-4,  
 Poly(propylene oxide)  
 RL: TEM (Technical or engineered material use); USES  
 (Uses)  
 (intermediate layer; multilayer materials with  
 reduced color contribution of coated top layer)

IT 108-46-3D, Resorcinol, polyesters, block copolymers with polycarbonates  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (outer layer; multilayer materials with reduced  
 color contribution of coated top layer)

IT 24936-68-3, Lexan 140, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (substrate; multilayer materials with reduced color  
 contribution of coated top layer)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
 (1 CITINGS)

L55 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2009 ACS ON STN  
 ACCESSION NUMBER: 2004:549467 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 141:107743  
 TITLE: Melamine resin dispersions.  
 INVENTOR(S): Raetzsch, Manfred; Jochem, Daniel

PATENT ASSIGNEE(S): AMI Agrolinz Melamine International GmbH, Austria  
 SOURCE: Ger. Offen., 17 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10261805	A1	20040708	DE 2002-10261805	20021219 <--
CA 2507776	A1	20040708	CA 2003-2507776	20031218 <--
WO 2004056899	A1	20040708	WO 2003-EP14452	20031218 <--
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2003290080	A1	20040714	AU 2003-290080	20031218 <--
AU 2003290080	B2	20080626		
EP 1578826	A1	20050928	EP 2003-782440	20031218 <--
EP 1578826	B1	20070620		
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK			
CN 1729220	A	20060201	CN 2003-80106992	20031218 <--
CN 1324061	C	20070704		
JP 2006510769	T	20060330	JP 2004-561336	20031218 <--
AT 365179	T	20070715	AT 2003-782440	20031218 <--
ES 2289345	T3	20080201	ES 2003-782440	20031218 <--
NO 2005003458	A	20050715	NO 2005-3458	20050715 <--
US 20060173102	A1	20060803	US 2006-539935	20060209 <--
PRIORITY APPLN. INFO.:			DE 2002-10261805	A 20021219 <--
			WO 2003-EP14452	W 20031218 <--

# ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A plastic dispersion consisting of an aqueous and organic nanophase is useful for impregnating paper or plastic for manufacturing weather-resistant hydrophilic laminates (or similar materials based on cellulose, wood or polar plastics, such as polyamides, polyesters, polyvinylacetate or polyvinyl alc.) having hydrophobic surfaces and for hydrophilic molded shapes, mainly based on wood or wood blends containing 55-90 weight% of wood and 10-45 weight% of thermoplastic- or thermosetting polymer in building industry (especially, for facade treatment) and for sporting goods. The aqueous phase is a solution of a partially etherified with C1-4 alcs. melamine resins 10-50, a latent crosslinking catalyst 0.05-3 (based on resin), and water-soluble polymers or/and water-soluble multi-valent alcs. 1-20 weight% in water or in a mixture of water with C1-6 alcs. An organic phase consists of nanoparticles containing water-insol. etherified with C1-4 and C5-18 alcs., C2-20 diols and/or polyalkyleneoxides melamine resins 70-99, crosslinking catalyst 0.05-3, waterproofing agent 1-30, water-insol. multi-valent alc. having mol. weight 134-5,000, optionally layered silicate 1-30 weight%, and nonionic dispersant (or a mixture of 90-99 weight% of non-ionic and 1-50 weight% of anionic dispersant) 1-10 weight%. The ratio of the hydrophilic to the water-insol. etherified melamine resin is (1-10):(1-10). Thus, melting at 120°, a mixture containing 330 g of partially etherified melamine resin, 30 g of isobutanol and 100 g of imidized styrene-maleic anhydride copolymer (waterproofing

- agent), adding at 100° 600 g of 2,4,6-tris(methoxymethylamino)-triazine (mixed with other higher oligomers), dispersing the resulting melt with 990 g of water and 18 g of a dispersant (consisting of ethoxylated mixture of C16-18 alcs. and ethoxylated sodium p-nonylphenylsulfate) at 70°, cooling to 35°, adding 100 g of butanol, 1.2 g of methylammonium phthalate (latent crosslinking catalyst) and 8 g of monostearyl maleate (acidic crosslinking catalyst) gave a dispersion with particle size 130 nm, used for coating of decorative paper to provide its surfaces with hydrophobic properties.
- IC ICM C08L061-28  
ICS C08G014-10; C09D161-28; E04F013-08; E04B001-64
- CC 42-ii (Coatings, Inks, and Related Products)  
Section cross-reference(s): 38, 43
- ST melamine resin dispersion impregnating paper plastic; weather resistant hydrophobized hydrophilic laminate hydrophilic molded shape; aq phase partially etherified melamine resin crosslinking catalyst precursor; water insol etherified melamine resin dispersion; acid crosslinking catalyst waterproofing agent nonionic anionic dispersant; methanol etherified melamine resin imidized styrene maleic anhydride copolymer; trimethoxymethylaminotriazine dispersion waterproofing agent; ethoxylated sodium nonylphenylsulfate dispersant melamine resin; methylammonium phthalate latent crosslinking catalyst; monostearyl maleate crosslinking catalyst melamine resin
- IT Alcohols, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(C1-4, reaction products with formaldehyde-melamine copolymer, water-insol.; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Alcohols, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(C16-18, ethoxylated, non-ionic dispersant; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Glycols, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(C2-20, reaction products with formaldehyde-melamine copolymer, water-insol.; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Alcohols, uses  
RL: CAT (Catalyst use); USES (Uses)  
(C2-8, esters with C6-14 aromatic or inorg. acids, acidic crosslinking catalyst; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Carboxylic acids, uses  
RL: CAT (Catalyst use); USES (Uses)  
(C4-18, acidic crosslinking catalyst; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Alcohols, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(C5-18, reaction products with formaldehyde-melamine copolymer, water-insol.; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Alcohols, uses  
RL: CAT (Catalyst use); USES (Uses)  
(aliphatic, C1-12, esters with C6-14 aromatic or inorg. acids, acidic crosslinking catalyst; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)

- IT Silanes  
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
 (amino, waterproofing agent; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Carboxylic acids, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (aromatic, esters, C6-14, with C1-12 alkyl or C2-8 hydroxyalkyl, acidic crosslinking catalyst; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Sulfonic acids, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (blocked, acidic crosslinking catalyst; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Paper  
 (decorative; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Phosphates, uses  
 Phosphites  
 RL: CAT (Catalyst use); USES (Uses)  
 (esters, latent crosslinking catalyst; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Polyoxyalkylenes, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (ether with alcs., non-ionic and anionic dispersant; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Dispersing agents  
 Nanoparticles  
 Waterproofing agents  
 (etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Fluoropolymers, uses  
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
 (etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Aminoplasts  
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
 (etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Laminated plastics, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Sporting goods  
 (etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings in building industry and for sporting goods)
- IT Polyoxyalkylenes, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (ethers, mono, with C8-18-alcs., non-ionic dispersant; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Construction materials  
 (facades; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings in building industry and

- for sporting goods)
- IT Aminoplasts  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(hydrophilic; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Polyesters, uses  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(hydroxy-containing, water-soluble polymer; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Paper  
(laminates; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Crosslinking catalysts  
(latent; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Silicates, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(layered, waterproofing agent; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Laminated materials  
(paper; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Construction materials  
(particleboards; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Aminoplasts  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(reaction products with C1-4 and C5-18 alcs., C2-20 diols and/or polyalkyleneoxides, water-insol.; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Polyoxyalkylenes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(reaction products with formaldehyde-melamine copolymer, water-insol.; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Amines, uses  
RL: CAT (Catalyst use); USES (Uses)  
(salts, C1-12, salts with aliphatic, aromatic, alkylarom. and inorg. acids, acidic crosslinking catalyst; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Carboxylic acids, uses  
RL: CAT (Catalyst use); USES (Uses)  
(salts, C1-4 alkylammonium, crosslinking catalyst precursor; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Amines, uses  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(silyl, waterproofing agent; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Wood  
(substrate; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Polyamides, miscellaneous  
Polyesters, miscellaneous

- RL: MSC (Miscellaneous)  
(substrate; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Polyoxymethylenes, uses  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(water-soluble polymer; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT Fluoropolymers, uses  
Polysiloxanes, uses  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(waterproofing agent; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 718646-28-7  
RL: CAT (Catalyst use); USES (Uses)  
(acid crosslinking catalyst; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 75-75-2, Methanesulfonic acid 84-73-1 104-15-4, p-Toluenesulfonic acid, uses 108-78-1D, Melamine, salt with C1-18 aliphatic acids 110-16-7, Maleic acid, uses 504-08-5D, Guanamine, salt with C1-18 aliphatic acids 925-21-3, Monobutyl maleate 2424-62-6, Monostearyl maleate 7647-01-0, Hydrochloric acid, uses 7664-38-2D, Phosphoric acid, alkali salts 7664-93-9, Sulfuric acid, uses 25322-17-2, Dinonylnaphthalenesulfonic acid 27176-87-0, Dodecylbenzenesulfonic acid 60223-95-2, Dinonylnaphthalenedisulfonic acid  
RL: CAT (Catalyst use); USES (Uses)  
(acidic crosslinking catalyst; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 79-41-4D, (Meth)acrylic acid, polymer, alkali salts 33678-12-5  
RL: NUU (Other use, unclassified); USES (Uses)  
(anionic dispersant; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 28158-18-1  
RL: MOA (Modifier or additive use); USES (Uses)  
(assumed monomers, water-soluble polymer; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 31900-57-9D, Polydimethylsiloxane, hydroxypropyl- and aminopropyl-terminated  
RL: MOA (Modifier or additive use); USES (Uses)  
(assumed monomers, waterproofing agent; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 71-36-3, Butanol, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(co-dispersant; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 14475-38-8D, Silanol, organic derivs.  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 9003-08-1P, Formaldehyde-melamine copolymer  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(hydrophilic; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 88-99-3D, Phthalic acid, esters 131-11-3, Dimethyl phthalate 144-62-7D, Oxalic acid, esters 553-90-2, Dimethyl oxalate 598-02-7,

- Diethyl phosphate 1113-38-8, Ammonium oxalate 1762-95-4 7727-54-0, Ammonium peroxydisulfate 7783-20-2, Ammonium sulfate, uses 10124-31-9, Ammonium phosphate 12125-02-9, Ammonium chloride, uses 28285-41-8 66280-94-2, Naphthalenesulfonic acid methylammonium salt 324767-99-9  
 RL: CAT (Catalyst use); USES (Uses)  
 (latent crosslinking catalyst; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 25322-68-3D, Polyethylene glycol, ether with alcs.  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (non-ionic and anionic dispersant; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 9005-00-9, Ethoxylated Stearyl alcohol 29911-28-2  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (non-ionic dispersant; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 9004-9b-9, Ethoxylated Cetyl alcohol 9004-98-2, Ethoxylated oleyl alcohol 106392-12-5, Ethylene oxide-propylene oxide block copolymer  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (non-ionic dispersant; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 9019-29-8D, Butene-ethylene copolymer, maleated  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (particleboard substrate binder; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 9003-20-7, Polyvinyl acetate  
 RL: MSC (Miscellaneous)  
 (substrate; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 7631-86-9, Silica, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (surface-fluorinated, waterproofing agent; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 2420-27-1, 2,4,6-Tris(methoxymethylamino)-triazine  
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
 (water-insol. component; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 718646-27-6 718646-29-8 718646-30-1  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (water-insol. component; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 9003-08-1D, Formaldehyde-melamine copolymer, reaction products with C1-4 and C5-18 alcs., C2-20 diols and/or polyalkyleneoxides  
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
 (water-insol.; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 24980-41-4, Polycaprolactone  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (water-soluble polymer; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 9002-89-5, Polyvinyl alcohol 25322-69-4, Polypropylene oxide  
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
 (water-soluble polymer; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)
- IT 78-83-1D, Isobutanol, reaction products with formaldehyde-melamine

copolymer  
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
 (water-soluble, codispersant; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)

IT 67-56-1D, Methanol, reaction products with formaldehyde-melamine copolymer  
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
 (water-soluble; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)

IT 111-86-4D, Octylamine, reaction products with maleic anhydride-styrene copolymer and diglycolamine 141-43-5D, Ethanolamine, reaction products with maleic anhydride-styrene copolymer and octylamine 929-06-6D, Diglycolamine, reaction products with maleic anhydride-styrene copolymer and octylamine 9002-84-0, Tetrafluoroethylene homopolymer 9011-13-6D, Maleic anhydride-styrene copolymer, reaction products with octylamine and diglycolamine 97917-34-5, Dimethylsilanediol homopolymer, sru, aminopropyl-terminated 156309-06-7, Dimethylsiloxane-ethylene oxide block copolymer  
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
 (waterproofing agent; etherified melamine resin nanosize dispersions for waterproofing cellulose and plastic moldings)

OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L55 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2009 ACS ON STN

ACCESSION NUMBER: 2003:1004664 HCAPLUS Full-text

DOCUMENT NUMBER: 140:6199

TITLE: Slide bead coating with a low viscosity carrier layer applicable to a moving substrate for manufacturing photographic film and paper products

INVENTOR(S): Bermel, Marcus S.; McKeown, Steven P.; Ruschak, Kenneth J.

PATENT ASSIGNEE(S): Eastman Kodak Company, USA

SOURCE: U.S. Pat. Appl. Publ., 8 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 20020160119	A1	20021031	US 2001-795793	20010228 <--
US 6579569	B2	20030617		

PRIORITY APPLN. INFO.: US 2001-795793 20010228 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB An improved method of thin film coating is taught that uses a multi-slot coating apparatus to apply multiple liquid layers to a moving substrate. The lowermost layer contacting the substrate is comprised of an organic solvent. The lowermost layer may be a single organic solvent or a blend of several organic solvents. Whether comprised of a single organic solvent or a blend of organic solvents, the viscosity of the lowermost layer is less than 1 cp and the wet thickness of the lowermost layer is not more than about 5  $\mu$ m. Addnl.

liquid layers are applied to the moving substrate on the top of the lowermost layer. This method allows for application of coatings at high substrate speeds. This method also allows for the reduction of coating artifacts caused by contamination of the surface of the die.

- IC ICM B05D001-30
- ICS B05D001-34
- INCL 427402000; 427420000
- CC 42-2 (Coatings, Inks, and Related Products)
- Section cross-reference(s): 74
- ST photog film multilayer coating method slide bead moving substrate
- IT Polycarbonates, uses
- Polyesters, uses
- Polyurethanes, uses
- Polyvinyl butyral
- RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
- (above-the-carrier layer; slide bead coating with a low viscosity carrier layer applicable to a moving substrate for manufacturing photog. film and paper products)
- IT Alcohols, uses
- Ketones, uses
- RL: NUU (Other use, unclassified); USES (Uses)
- (carrier component; slide bead coating with a low viscosity carrier layer applicable to a moving substrate for manufacturing photog. film and paper products)
- IT Coating process
- (cast; slide bead coating with a low viscosity carrier layer applicable to a moving substrate for manufacturing photog. film and paper products)
- IT Coating materials
- (multilayer; slide bead coating with a low viscosity carrier layer applicable to a moving substrate for manufacturing photog. film and paper products)
- IT Solvents
- (organic, carrier layer; slide bead coating with a low viscosity carrier layer applicable to a moving substrate for manufacturing photog. film and paper products)
- IT Photographic films
- Photographic paper
- (slide bead coating with a low viscosity carrier layer applicable to a moving substrate for manufacturing photog. film and paper products)
- IT 9004-34-6, Cellulose, uses
- RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
- (above-the-carrier layer; slide bead coating with a low viscosity carrier layer applicable to a moving substrate for manufacturing photog. film and paper products)
- IT 64-17-5, Ethanol, uses 67-56-1, Methanol, uses 67-63-0, Isopropanol, uses 67-64-1, Acetone, uses 71-23-8, n-Propanol, uses 71-36-3, 1-Butanol, uses 75-09-2, Methylene chloride, uses 78-93-3, Methyl ethyl ketone, uses 108-10-1, Methyl isobutyl ketone 108-88-3, Toluene, uses
- RL: NUU (Other use, unclassified); USES (Uses)
- (carrier component; slide bead coating with a low viscosity carrier layer applicable to a moving substrate for manufacturing photog. film and paper products)

OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD  
(3 CITINGS)

L55 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2009 ACS ON STN  
ACCESSION NUMBER: 2002:733963 HCAPLUS Full-text  
DOCUMENT NUMBER: 137:249213  
TITLE: Combinatorial coating for screening materials  
INVENTOR(S): Vanmaele, Luc; Desie, Guido  
PATENT ASSIGNEE(S): Agfa-Gevaert, Belg.  
SOURCE: Eur. Pat. Appl., 15 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1243409	A2	20020925	EP 2001-124	20010425 <--
EP 1243409	A3	20030514		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

PRIORITY APPLN. INFO.: EP 2000-201599 A 20000501 <--

AB Methods and apparatus for rapid screening of layered materials, for a useful property. In the method at least two layered materials are applied on one single substrate. Preferably the materials are applied by coating from a coating composition and are multi-layered materials having at least two distinct layers.

IC ICM B32B031-00  
ICS B32B033-00; B01J019-00

CC 42-i0 (Coatings, Inks, and Related Products)

ST multilayer coating combinatorial screening

IT Gelatins, uses  
RL: CST (Combinatorial study, unclassified); POF (Polymer in formulation);  
TEM (Technical or engineered material use); CMBI (Combinatorial study);  
USES (Uses)  
(combinatorial coating for screening materials)

IT Coating materials  
(multilayer; combinatorial coating for screening materials)

IT 9004-34-6, Cellulose, uses 50851-57-5, Polystyrene-sulfonic acid 126213-51-2, 3,4 Poly-ethylene dioxy thiophene  
RL: CST (Combinatorial study, unclassified); POF (Polymer in formulation);  
TEM (Technical or engineered material use); CMBI (Combinatorial study); USES (Uses)  
(combinatorial coating for screening materials)

IT 26062-79-3, Polydiallyldimethyl ammonium chloride  
RL: CST (Combinatorial study, unclassified); TEM (Technical or engineered material use); CMBI (Combinatorial study); USES (Uses)  
(combinatorial coating for screening materials)

IT 9002-89-5, Polyvinylalcohol  
RL: CST (Combinatorial study, unclassified); TEM (Technical or engineered material use); CMBI (Combinatorial study); USES (Uses)  
(silica filled; combinatorial coating for screening materials)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(1 CITINGS)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L55 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2002:610547 HCAPLUS Full-text  
 DOCUMENT NUMBER: 137:141449  
 TITLE: Polysiloxane barrier coatings suitable for  
 production of multilayer packaging materials  
 INVENTOR(S): Merlin, Patrick  
 PATENT ASSIGNEE(S): Dow Corning SA, Belg.  
 SOURCE: Brit. UK Pat. Appl., 27 pp.  
 CODEN: BAXXDU  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 2367556	A	20020410	GB 2000-24367	20001005 <--
PRIORITY APPLN. INFO.:			GB 2000-24367	20001005 <--

AB Polysiloxane barrier coating, suitable for production of multilayer packaging materials, comprises reaction product in non-aqueous solvent of (a) an amino-functional cyclic siloxane of general formula (R1<sub>2</sub>SiO<sub>2</sub>/2)<sub>x</sub>, where each R1 may be the same or different and may be selected from the group consisting of alkyl, substituted alkyl, amine, aryl, substituted aryl, arylalkyl, each having 1 to 18 carbon atoms, and (b) a reactive silane or a mixture of reactive silanes of the formula (R2O)<sub>n</sub>(R3)<sub>3-n</sub>SiX, where each R2 group is the same or different and represents C1-c4-alkyl group and C1-c4-acyl group, each R3 group is the same or different and represents a C1-C8-hydrocarbon group, X is an organic radical with at least one functional unit selected from epoxide, alkenyl, aldehyde, (meth)acrylate, episulfide, (meth)acrylamide, isocyanate, isothiocyanate, or halogen, and n is 1, 2 or 3. Thus, amino-functional cyclic siloxane composed of units of [3-[(2-aminoethyl)amino]-3-methylpropyl]methylsilanediol was reacted in isopropanol with glycidylxypropyltrimethoxysilane at room temperature for 24 h. This polymer was laminated between two LDPE layers at 60° and showed Et acetate transmission rate 8-65 g/sq.m in 24 h, compared to 700 for LDPE.

IC ICM C09D183-04  
 ICS C08G077-26; C09D183-08

CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 42

ST amino cyclic polysiloxane barrier coating multilayer packaging film prodn

IT Polysiloxanes, uses  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (cycllosiloxane-, amino-containing, reaction products; polysiloxane barrier coatings suitable for production of multilayer packaging materials)

IT Paper  
 (glassine or clay-coated, substrate; polysiloxane barrier coatings suitable for production of multilayer packaging materials)

IT Coating materials  
 (impermeable; polysiloxane barrier coatings suitable for production of multilayer packaging materials)

IT Crosslinking agents  
 (in production of polysiloxane barrier coatings used in multilayer packaging materials)

IT Packaging materials  
 (laminated films; polysiloxane barrier coatings suitable for production of multilayer packaging

- materials)
- IT Cyclosiloxanes  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (siloxane-, amino-containing, reaction products; polysiloxane barrier coatings suitable for production of multilayer packaging materials)
- IT Alcohols, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (solvents; in production of polysiloxane barrier coatings used in multilayer packaging materials)
- IT Natural rubber, uses  
 Polyesters, uses  
 Silicone rubber, uses  
 Synthetic rubber, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (substrate; polysiloxane barrier coatings suitable for production of multilayer packaging materials)
- IT Polyamides, uses  
 Polyesters, uses  
 Polyolefins  
 Polysaccharides, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (substrates; polysiloxane barrier coatings suitable for production of multilayer packaging materials)
- IT 444587-35-3DP, reaction products with functionalized silanes  
 444587-36-4DP, reaction products with functionalized silanes  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (cyclic; polysiloxane barrier coatings suitable for production of multilayer packaging materials)
- IT 9002-88-4, Polyethylene  
 RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
 (low-d., substrate; polysiloxane barrier coatings suitable for production of multilayer packaging materials)
- IT 1344-28-1, Aluminum oxide, uses 7440-32-6, Titanium, uses 7631-86-9D, Silicon oxide, nonstoichiometric  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (plastics coated with, substrate; polysiloxane barrier coatings suitable for production of multilayer packaging materials)
- IT 2530-83-8DP, Glycidylpropyltrimethoxysilane, reaction products with cyclic amino-containing polysiloxanes 3388-04-3DP, A 186, reaction products with cyclic amino-containing polysiloxanes 25512-39-4DP, Chloropropyltrimethoxysilane, reaction products with cyclic amino-containing polysiloxanes 122055-02-1DP, reaction products with cyclic amino-containing polysiloxanes  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polysiloxane barrier coatings suitable for production of multilayer packaging materials)
- IT 9004-34-6, Cellulose, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (regenerated, substrate; polysiloxane barrier coatings suitable for production of multilayer packaging materials)
- IT 67-63-0, Isopropanol, uses

RL: NUU (Other use, unclassified); USES (Uses)  
(solvent; in production of polysiloxane barrier coatings used in multilayer packaging materials)

IT 9002-85-1, Poly(vinylidene chloride) 9002-86-2, Polyvinyl chloride  
9002-89-5, Poly(vinyl alcohol) 9003-07-0, Polypropylene 9003-53-6,  
Polystyrene 9010-77-9, Ethylene-acrylic acid copolymer  
24937-78-8, Ethylene-vinyl acetate copolymer 24968-11-4,  
Poly(ethylene naphthalate) 25014-41-9, Poly(acrylonitrile) 25038-59-9,  
Poly(ethylene terephthalate), uses 25067-34-9, Ethylene-vinyl alcohol  
copolymer 25230-87-9 25718-70-1 25805-74-7, MXD 6  
31531-56-3, Poly(1,2-dichloroethylene)  
RL: TEM (Technical or engineered material use); USES (Uses)  
(substrate; polysiloxane barrier coatings suitable  
for production of multilayer packaging materials)

L55 ANSWER 6 OF 9 HCAPLUS COPYRIGHT 2009 ACS on STN  
ACCESSION NUMBER: 2002:202201 HCAPLUS Full-text  
DOCUMENT NUMBER: 136:249102  
TITLE:

Structures having epoxy resin upper layers and urethane lower layers  
INVENTOR(S): Fujii, Masato; Kawai, Isao; Kanzaki, Mitsuyuki  
PATENT ASSIGNEE(S): Dainippon Ink and Chemicals, Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002079641	A	20020319	JP 2000-268503	20000905 <--
JP 4345211	B2	20091014		

PRIORITY APPLN. INFO.: JP 2000-268503 20000905 <--

AB The structures, useful for factory floors, consist of (A) epoxy resin upper layers and (B) lower layers manufactured from moisture-curable compns. containing polyisocyanates and compds. generating active H by moisture. Thus, a concrete substrate was primed with Plyadek T 120-35, covered with an intermediate coat comprising polyisocyanate [manufactured from polybutylene glycol, polyoxypropylene triol, and 2,4-TDI] and a reaction product of polyisocyanate [manufactured from polyoxyethylene-polyoxypropylene triol, polypropylene glycol, and HMDI] with 2-isopropyl-3-(2-hydroxyethyl)-1,3-oxazolidine, and topcoated with a composition containing Epiclone 850, Adeka Glycilol ED 512, CaCO<sub>3</sub>, Adeka Hardener EH 551, and Adeka Hardener EH 531 to give a structure with excellent durability.

IC ICM B32B027-38  
ICS B32B027-40; C08G018-10; C08G018-32  
CC 42-9 (Coatings, Inks, and Related Products)

ST Section cross-reference(s): 58  
concrete floor coating epoxy resin polyurethane; moisture curable polyurethane epoxy resin coating; factory floor coating epoxy resin polyurethane

IT Coating materials  
(moisture-curable; structures having epoxy resin upper layers and urethane lower layers)

IT Coating materials  
(multilayer; structures having epoxy resin upper layers and urethane lower layers)

IT Concrete  
(substrates; structures having epoxy resin upper layers and

urethane lower layers)

IT 584-84-9DP, 2,4-TDI, polymers with polybutylene glycol and polyoxypropylene triol 822-06-0DP, HMDI, polymers with polyoxyalkylene polyols, reaction products with (hydroxyethyl)oxazolidine 9003-11-6DP, Polyoxyethylene-polyoxypropylene, triol derivs., polymers with polyalkylene glycol and polyisocyanate 25190-06-1DP, Polybutylene glycol, polymers with TDI, polyoxypropylene triols 25322-69-4DP, Polypropylene glycol, polymers with HMDI and polyoxyalkylene polyols, reaction products with (hydroxyethyl)oxazolidine 25322-69-4DP, Polypropylene glycol, triol derivs., polymers with polybutylene glycol and TDI 28770-01-6DP, 2-Isopropyl-3-(2-hydroxyethyl)-1,3-oxazolidine, reaction products with polyoxyalkylene polyisocyanates

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(structures having epoxy resin upper layers and urethane lower layers)

L55 ANSWER 7 OF 9 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:158303 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 136:201958

TITLE: Combinatorial coating for developing novel materials

INVENTOR(S): Vanmaele, Luc; Desie, Guido

PATENT ASSIGNEE(S): AGFA-Gevaert, Belg.

SOURCE: U.S. Pat. Appl. Publ., 13 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20020025380	A1	20020228	US 2001-848613	20010503 <--
US 6562411	B2	20030513		

PRIORITY APPLN. INFO.: US 2000-206773P P 20000524 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A method for developing layered materials comprises: applying, on a first region, RM, of a substrate, a first layered material, MRM, and on a second region, RN, of the substrate a second layered material, MRN, the material, MRM, being different from the material, MRN, and screening the materials, MRM and MRN, for a useful property, wherein the layers are applied by coating from a coating solution Preferably the materials are applied by coating from a coating composition and are multi-layered materials having at least two distinct layers.

IC ICM B05D001-36

ICS B05D003-02; B05D007-00; B05D001-30

INCL 427372200

CC 42-10 (Coatings, Inks, and Related Products)

ST combinatorial coating screening

IT Coating materials

Inks

(combinatorial coating for developing novel materials)

IT Gelatins, uses

RL: CUS (Combinatorial use); POF (Polymer in formulation); TEM (Technical or engineered material use); CMBI (Combinatorial study); USES (Uses)

(combinatorial coating for developing novel materials)

IT Coating materials

(elec. conductive; combinatorial coating for developing novel materials)

IT 9002-89-5, Polyvinylalcohol 9004-34-6D, Cellulose, ethers  
 26062-79-3, Polydiallyldimethylammonium chloride  
 RL: CUS (Combinatorial use); POF (Polymer in formulation); TEM  
 (Technical or engineered material use); CMBI (Combinatorial study);  
 USES (Uses)  
 (combinatorial coating for developing novel materials)

IT 57-09-0, CTAB  
 RL: CUS (Combinatorial use); TEM (Technical or engineered material use);  
 CMBI (Combinatorial study); USES (Uses)  
 (combinatorial coating for developing novel materials)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
 (1 CITINGS)

L55 ANSWER 8 OF 9 HCAPLUS COPYRIGHT 2009 ACS ON STN  
 ACCESSION NUMBER: 1999:480829 HCAPLUS Full-text  
 DOCUMENT NUMBER: 131:145768  
 TITLE: Method for formation of multilayer coating  
 films with good appearance, interlayer  
 adhesion, and low volatile organic content  
 INVENTOR(S): Nagano, Hiroyuki; Yokoyama, Tetsuya; Kasari, Akira  
 PATENT AGENT(S): Kansai Paint Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 11207252	A	19990803	JP 1998-25210	19980123 <--
PRIORITY APPLN. INFO.:				JP 1998-25210	19980123 <--
AB	The method comprises (1) coating a substrate with a cationic electrodeposition coating (A), which contains a blocked polyisocyanate as a crosslinking agent and is adjusted so that the crosslinking of the coating occurs before that of the neighboring intermediate coating, (2) covering with an aqueous intermediate coating (B) containing a blocked polyisocyanate, (3) heating for curing of A and B, (4) coating with a colored topcoat (C) of good hiding power and then a transparent aqueous topcoat (D), (5) heating for curing of C and D, and (6) coating with a clear coat (E) and thermally curing it. Thus, coatings A, B, C, D, and E were successively applied to a Zn phosphate-treated steel sheet by a 5-coat-3-bake process to give a test piece showing good smoothness, image sharpness, water, chipping, and weather resistance, and VOC 74%.				
IC	ICM B05D003-02				
	ICS B05D003-10; B05D005-06				
CC	42-2 (Coatings, Inks, and Related Products)				
ST	multilayer coating volatile org content low; blocked polyisocyanate crosslinker multilayer coating; cationic electrodeposition coating multilayer blocked polyisocyanate				
IT	Aminoplasts RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (crosslinking agent for colored topcoat; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)				
IT	Polyurethanes, uses Polyurethanes, uses Polyurethanes, uses Polyurethanes, uses				

- RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (epoxy-polyester-polyether-, cationic electrodeposition coating; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT Polyethers, uses  
 Polyethers, uses  
 Polyethers, uses  
 Polyethers, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (epoxy-polyester-polyurethane-, cationic electrodeposition coating; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT Polyesters, uses  
 Polyesters, uses  
 Polyesters, uses  
 Polyesters, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (epoxy-polyether-polyurethane-, cationic electrodeposition coating; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT Electrodeposits  
 (formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT Polyesters, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (intermediate and colored topcoat layers; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT Coating process  
 (multilayer; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT Epoxy resins, uses  
 Epoxy resins, uses  
 Epoxy resins, uses  
 Epoxy resins, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyester-polyether-polyurethane-, cationic electrodeposition coating; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT Polyoxoalkylenes, uses  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polymers with cationic epoxy resin and polyisocyanate, cationic electrodeposition coating; formation of multilayer coating films with good appearance, interlayer

- adhesion, and low volatile organic content)
- IT Coating materials  
(topcoats; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT Coating materials  
(transparent; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT Coating materials  
(water-thinned; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT 91-08-7DP, 2,6-Tolylene diisocyanate, polymers with polycaprolactone diol, cationic epoxy resin, and polypropylene glycol 109-83-1DP, N-Methylethanolamine, reaction products with Epikote 1002, protonated, polymer with polyisocyanate and polypropylene glycol 25068-38-6DP, Epikote 1002, reaction products with methylethanolamine, protonated, polymer with polyisocyanate and polypropylene glycol 25248-42-4DP, Poly(caprolactone), sru, diol derivs., polymers with TDI, cationic epoxy resin, and polypropylene glycol 25322-69-4DP, Polypropylene glycol, polymers with cationic epoxy resin and polyisocyanate  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(cationic electrodeposition coating; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT 69399-89-9P, Acrylic acid-acrylonitrile-butyl acrylate-2-hydroxyethyl methacrylate-methyl acrylate-methyl methacrylate-styrene copolymer 70549-17-6P, Butyl acrylate-2-ethylhexyl acrylate-2-hydroxyethyl acrylate-styrene copolymer 110633-03-9P, Decamethylenedicarboxylic acid-2-ethylhexyl acrylate-glycidyl methacrylate-methyl methacrylate-styrene copolymer  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(clear coat; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT 148105-40-2P, Acrylic acid-butyl acrylate-2-hydroxyethyl methacrylate-methyl methacrylate-styrene copolymer 2-amino-2-methylpropanol salt 223733-77-5P, Acrylic acid-butyl acrylate-ethyl acrylate-2-hydroxyethyl methacrylate-methyl methacrylate copolymer 2-amino-2-methylpropanol salt 223733-78-6P, Adipic acid-neopentyl glycol-phthalic anhydride-trimellitic anhydride-trimethylolpropane copolymer 2-amino-2-methylpropanol salt 235421-10-0P, Butyl acrylate-2-hydroxyethyl acrylate-methacrylic acid-methyl methacrylate-styrene copolymer 2-amino-2-methylpropanol salt 235421-12-2P, Acrylic acid-butyl methacrylate-2-ethylhexyl methacrylate-4-hydroxybutyl acrylate-styrene copolymer 2-amino-2-methylpropanol salt  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(colored topcoat; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT 9003-08-1P  
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PRP

- (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (crosslinking agent for colored topcoat; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT 235421-07-5P, Adipic acid-hexahydrophthalic acid-hexamethylene diisocyanate trimer-isophthalic acid-neopentyl glycol-trimellitic anhydride-trimethylolpropane copolymer 2-amino-2-methylpropanol salt  
 235421-09-7P, Acrylic acid-butyl methacrylate-2-ethylhexyl methacrylate-hexamethylene diisocyanate trimer-4-hydroxybutyl acrylate-styrene copolymer 2-amino-2-methylpropanol salt  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (intermediate coating; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)
- IT 235421-14-4P, Acrylic acid-2-ethylhexyl methacrylate-4-hydroxybutyl acrylate-isobutyl methacrylate-Placel FA 2-styrene copolymer 2-amino-2-methylpropanol salt  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (transparent topcoat; formation of multilayer coating films with good appearance, interlayer adhesion, and low volatile organic content)

L55 ANSWER 9 OF 9 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1972:566216 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 77:166216

ORIGINAL REFERENCE NO.: 77:27295a,27298a

TITLE: Radio-frequency emission during adhesion disturbance

AUTHOR(S): Tyurikova, L. A.; Krotova, N. A.; Moskvitin, N. I.

CORPORATE SOURCE: USSR

SOURCE: Poverkh. Yavleniya Polim. (1971), No. 1,

119-25

From: Ref. Zh., Khim. 1971, Abstr. No. 23S110

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The electromagnetic radiation which occurs during the delamination of polymeric films from solid substrates was studied. Films of cellulose esters, poly(vinyl chloride) [9002-86-2], natural rubber, and natural rubber-synthetic rubber mixts. applied to steel [12597-69-2] and glass substrates were studied. At a threshold speed of delamination, characteristic for each given pair, clearly pronounced electromagnetic pulse vibrations were observed in the radiofrequency region. These vibrations were damped because of the conductivity of the system. The radiofrequency band width was in sybatic relation with the work of delamination. The form and structure of the pulse also depended on the nature of the separated surfaces. With the delamination of a mixture, the form and structure of the pulses were chaotic. Radiofrequency radiation was not observed in cohesive failure of the films. The origin of the radiation could be explained in terms of the elec. theory of adhesion: radio waves were generated in the elec. discharge plasma created by a double elec. layer at the interface.

CC 42-1 (Coatings, Inks, and Related Products)

Section cross-reference(s): 71, 73

ST radiation emission coating delamination; radio wave emission delamination; polymer coating delamination radiation; plastic coating delamination radiation; rubber coating delamination radiation; steel coating delamination radiation;

glass coating delamination radiation

IT Rubber, natural, properties  
 Rubber, synthetic  
     (delamination of coating films of, radio wave  
     generation in, mechanism of)

IT Coating materials  
     (delamination of, radio wave emission in, mechanism of)

IT Radio wave  
     (generation of, in delamination of coating films  
     from steel and glass)

IT 9002-86-2 9004-34-6, uses and miscellaneous  
 RL: USES (Uses)  
     (delamination of coating films of, radio wave  
     generation in, mechanism of)

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(FILE 'HOME' ENTERED AT 12:32:05 ON 25 NOV 2009)

FILE 'HCAPLUS' ENTERED AT 12:32:15 ON 25 NOV 2009

L1 1 SEA ABB=ON PLU=ON US20070166544/PN  
D TALL

FILE 'STNGUIDE' ENTERED AT 12:34:44 ON 25 NOV 2009

FILE 'REGISTRY' ENTERED AT 12:36:10 ON 25 NOV 2009

L2 1 SEA ABB=ON PLU=ON 7631-86-9/RN  
L3 1 SEA ABB=ON PLU=ON 13463-67-7/RN  
L4 1 SEA ABB=ON PLU=ON 79-10-7/RN  
L5 1 SEA ABB=ON PLU=ON 9004-34-6/RN  
L6 1 SEA ABB=ON PLU=ON 9004-34-6/RN  
L7 1 SEA ABB=ON PLU=ON 25189-83-7/RN  
L8 1 SEA ABB=ON PLU=ON 25322-69-4/RN  
L9 1 SEA ABB=ON PLU=ON 224789-91-7/RN

FILE 'HCAPLUS' ENTERED AT 12:40:01 ON 25 NOV 2009

L10 86044 SEA ABB=ON PLU=ON (COAT# OR COATING OR COATED) (3A) (SUBSTRAT  
E#)  
L11 193147 SEA ABB=ON PLU=ON (COAT# OR COATING OR COATED) (3A) (GLASS?  
OR CERAMIC? OR METAL? OR CONCRETE?)  
L12 893059 SEA ABB=ON PLU=ON SILICA OR (SI OR SILICON) (W) (OXIDE# OR  
OXIDIZ? OR DIOXIDE#) OR SIO2  
L13 329617 SEA ABB=ON PLU=ON L2 (L) (TEM OR USES)/RL  
L14 258359 SEA ABB=ON PLU=ON TITANIA OR (TI OR TITANIUM) (W) (OXIDE# OR  
DIOXIDE#)  
L15 154578 SEA ABB=ON PLU=ON L3 (L) (TEM OR USES)/RL  
L16 QUE ABB=ON PLU=ON PIGMENT# OR COLOR? OR COLOUR? OR DYE? OR  
STAIN? OR CHROMOPHOR? OR CHROMOGEN? OR PAINT?  
L17 QUE ABB=ON PLU=ON POLYMER? OR COPOLYMER? OR TERPOLYMER? OR  
HOMOPOLYMER? OR RESIN#  
L18 118282 SEA ABB=ON PLU=ON SILANE#  
L19 215096 SEA ABB=ON PLU=ON POLYMERS/CT  
L20 135380 SEA ABB=ON PLU=ON POLYOXYALKYLENES/CT  
L21 23252 SEA ABB=ON PLU=ON SILANES/CT  
L22 4864 SEA ABB=ON PLU=ON (HALOGRAPH? OR PEARLESC? OR INTERFEREN? OR  
BIOCL) (2A) L16  
L23 166540 SEA ABB=ON PLU=ON (MULTI? OR MUL(W)TI OR MULTIPLE OR  
SEVERAL? OR PLURAL? OR DOUBL? OR TRIPL?) (2A) (LAYER? OR FILM?  
OR THINFILM?)  
L24 26751 SEA ABB=ON PLU=ON ((L12 OR L13 OR L14 OR L15) OR L22 OR L23)  
AND (L18 OR L21)  
L25 12762 SEA ABB=ON PLU=ON L24 AND (L17 OR L19)  
L26 346940 SEA ABB=ON PLU=ON COATING MATERIALS/CT  
L27 QUE ABB=ON PLU=ON (COAT? OR TOPCOAT? OR OVERCOAT? OR  
OVERSPREAD? OR FILM? OR THINFILM? OR OVERLAY? OR OVERLAID? OR  
LAMINAT?)  
L28 6014 SEA ABB=ON PLU=ON L27 AND L25  
L29 346940 SEA ABB=ON PLU=ON L27 AND L26  
L30 61928 SEA ABB=ON PLU=ON ((L5 OR L6 OR L7 OR L8 OR L9)) (L) (TEM OR  
USES)/RL  
L31 113 SEA ABB=ON PLU=ON L28 AND L30  
L32 4282 SEA ABB=ON PLU=ON L29 AND L30  
L33 198428 SEA ABB=ON PLU=ON (MULTI? OR MUL(W)TI OR MULTIPLE OR

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SEVERAL? OR PLURAL? OR DOUBL? OR TRIPL?) (2A) (LAYER? OR
STRUCTURE?)
L34      4 SEA ABB=ON PLU=ON L31 AND L33
L35      59 SEA ABB=ON PLU=ON L32 AND L33
L36      52 SEA ABB=ON PLU=ON L31 AND (SUBSTRATE# OR PARTICLE# OR
MICROPARTICLE#)
L37      18 SEA ABB=ON PLU=ON L36 AND 42/SC,SX
L38      3 SEA ABB=ON PLU=ON L37 AND (MULTI? OR MUL(W)TI OR MULTIPLE OR
SEVERAL? OR PLURAL?)
D TI KWIC 1-3
L39      2138 SEA ABB=ON PLU=ON L32 AND 42/SC,SX
L40      615 SEA ABB=ON PLU=ON L39 AND (SUBSTRATE# OR PARTICLE# OR
MICROPARTICLE#)
L41      16 SEA ABB=ON PLU=ON L40 AND L33
L42      18 SEA ABB=ON PLU=ON L38 OR L41
SAVE TEMP L42 PAR459HCAP/A

FILE 'WPIX' ENTERED AT 13:06:35 ON 25 NOV 2009
L43      31848 SEA ABB=ON PLU=ON L10 AND L17
L44      2338 SEA ABB=ON PLU=ON L43 AND L18
L45      826 SEA ABB=ON PLU=ON (L12 OR L14 OR L22) AND L44
L46      185 SEA ABB=ON PLU=ON (MULTI? OR MUL(W)TI OR MULTIPLE OR
SEVERAL? OR PLURAL?) AND L45
L47      42591 SEA ABB=ON PLU=ON L17 AND L18
L48      57 SEA ABB=ON PLU=ON L46 AND (MULTI? OR MUL(W)TI OR MULTIPLE OR
SEVERAL? OR PLURAL?) (2A) (LAYER? OR FILM? OR STRUCTURE?)
L49      278122 SEA ABB=ON PLU=ON (LAYER? OR COAT# OR COATED OR COATING#)
(3A) L17
L50      5298 SEA ABB=ON PLU=ON (LAYER? OR COAT# OR COATED OR COATING#)
(3A) L18
L51      17 SEA ABB=ON PLU=ON L48 AND L49
L52      15 SEA ABB=ON PLU=ON L48 AND L50
L53      6 SEA ABB=ON PLU=ON L51 AND L52
D SCA
L54      26 SEA ABB=ON PLU=ON L51 OR L52
D TI KWIC
SAVE TEMP L54 PAR459WPIX/A

FILE 'STNGUIDE' ENTERED AT 13:21:33 ON 25 NOV 2009

FILE 'HCAPLUS' ENTERED AT 13:25:30 ON 25 NOV 2009
L55      9 SEA ABB=ON PLU=ON L42 AND (AY<2004 OR PRY<2004 OR PY<2004)

FILE 'WPIX' ENTERED AT 13:25:57 ON 25 NOV 2009
L56      18 SEA ABB=ON PLU=ON L54 AND (AY<2004 OR PRY<2004 OR PY<2004)
D TI KWIC
D TI KWIC 2-5
SAVE TEMP L56 PAR459WPIX/A

FILE 'APOLLIT, CERAB, EMA, PASCAL, WSCA' ENTERED AT 13:29:33 ON 25 NOV
2009
L57      3 SEA ABB=ON PLU=ON L51
L58      1 SEA ABB=ON PLU=ON L52
L59      3 SEA ABB=ON PLU=ON L57 OR L58
L60      0 SEA ABB=ON PLU=ON L59 AND (AY<2004 OR PRY<2004 OR PY<2004)

FILE 'WPIX' ENTERED AT 13:35:59 ON 25 NOV 2009
SEL L56 AP PN
L61      24 SEA ABB=ON PLU=ON (WO2002-US4879/AP OR US2000-227194P/AP OR
US2001-916777/AP OR WO2002-US23256/AP OR EP1999-928484/AP OR

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WO1997-US19532/AP OR WO1999-US12889/AP OR EP2002-721047/AP OR  
 US2001-919200/AP OR US2002-177614/AP OR EP1987-309356/AP OR  
 EP1991-114980/AP OR EP1997-913832/AP OR EP2001-126428/AP OR  
 EP2002-752510/AP OR JP2003-516795/AP OR US2003-402823/AP OR  
 US2003-633972/AP OR WO2002-US30160/AP OR AU2002-355727/AP OR  
 AU2002355727/PN OR CN2002-806345/AP OR DE1999-627974/AP OR  
 DE2002-613086/AP OR DE60213086/PN OR DE69927974/PN OR EP1093592  
 /PN OR EP1213338/PN OR EP1246239/PN OR EP1390972/PN OR  
 EP1456012/PN OR EP2002-7149/AP OR EP2005-11972/AP OR EP270229/P  
 N OR EP466205/PN OR EP993496/PN OR JP1999-508603/AP OR  
 JP2001-349119/AP OR JP2002-568408/AP OR KR2001-70360/AP OR  
 KR2002-16962/AP OR KR2003-709637/AP OR KR2004-701529/AP OR  
 US1986-937273/AP OR US1988-263206/AP OR US1998-95010/AP OR  
 US2001-2923/AP OR US2001-789422/AP OR US2003-393754/AP OR  
 US2004-804259/AP OR US2004-935643/AP OR WO2001-US26408/AP OR  
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 AU2001-86696/AP OR AU2001086696/PN OR AU2002-336761/AP OR  
 AU2002336761/PN OR AU9850924/PN OR AU9873718/PN OR AU9945541/PN  
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 CA1987-549113/AP OR "CN1251312 C"/PN OR CN1477146/PN OR  
 CN1550036/PN OR CN1580822/PN OR CN1592858/PN OR CN2001-816954/A  
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 OR DE1987-3780416/AP OR DE1987-3787381/AP OR DE1997-69728907/AP  
 OR DE2001-10125358/AP OR DE2001-50100408/AP OR DE2002-60227736  
 /AP OR DE2002-60228883/AP OR DE3780416/PN OR DE3787381/PN OR  
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 N OR EP1320772/PN OR EP1376159/PN OR EP1436018/PN OR EP1505413/  
 PN OR EP1584953/PN OR EP2001-966159/AP OR EP2002-773539/AP OR  
 EP2003-394057/AP OR EP2004-394041/AP OR ES1987-3424/AP OR  
 ES2005468/PN OR ES2251199/PN OR ES2262797/PN OR GB1998-13786/AP  
 OR GB2339785/PN OR IL157506/PN OR IL

L62 FILE 'HCAPLUS' ENTERED AT 13:36:41 ON 25 NOV 2009  
 9 SEA ABB=ON PLU=ON L55 NOT L61

FILE 'STNGUIDE' ENTERED AT 13:38:04 ON 25 NOV 2009  
 D QUE L56

FILE 'WPIX' ENTERED AT 13:39:05 ON 25 NOV 2009  
 D L56 1-18 IALL ABEQ TECH ABEX

FILE 'STNGUIDE' ENTERED AT 13:39:15 ON 25 NOV 2009  
 D QUE L55

FILE 'HCAPLUS' ENTERED AT 13:39:35 ON 25 NOV 2009  
 D L55 1-9 IBIB ABS HITIND

FILE 'STNGUIDE' ENTERED AT 13:39:38 ON 25 NOV 2009